DG .net

Best-selling author and new CW columnist Don Tapscott prepares IS for the Net Generation — bold, smart and 80 million strong. Page 97

COMPUTERWORLD

The Newsweekly for Information Technology Leaders
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Nerdy image feeds labor crisis

▸ *IS's geeky reputation hampers recruiting efforts*

By Julia King

JUST WHEN YOU thought it couldn't get any worse, it did.

Nearly 350,000 IT jobs are now unfilled at U.S. companies — up from a reported 190,000 vacant jobs a year ago, according to a report from the Information Technology Association of America in Arlington, Va. (see chart, page 96).

What's more, young people show little interest in pursuing an IT career. Many first- through 12th-graders regard IT professionals as geeky, nerdy people — mostly balding men who wear bow ties, pants that are too short and plastic pocket protectors as they work alone at their computers.

Other students who may be drawn to an IT career lack the resources to obtain necessary training and education. Nearly all programmer, systems analyst and computer engineer positions require at least a bachelor's degree.

Those are among the findings six task groups will present to 250 government, academic and industry leaders at this week's National Information Technology Workforce Convocation in Berkeley, Calif.

They will also present a wide

IT recruiting, page 96

New rules ease software cost burden

By Thomas Hoffman

AN ACCOUNTING trade association is planning to introduce a set of rules that, for the first time, would regulate how and in what instances companies can depreciate their software investments, *Computerworld* has learned.

The ruling could turn what is typically a big charge against earnings into a positive net asset.

Under a Statement of Position being formalized by the Accounting Standards Executive Committee, a standards setter for the American Institute of Certified Public Accountants, Inc. (*www.aicpa.org*), banks, retailers and other companies

New rules, page 16

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Our surveys reveal your best job-search bets. IT Careers, page 72

Damage control
Microsoft spin doctors try to soften bully-boy image. Page 2

SQL SERVER SET TO STRIKE
Microsoft readies powerful database, OLAP servers. Page 4

Merced mania stirs Unix camp
Vendors hope 64-bit chip will be new weapon vs. NT. Page 6

LOTUSPHERE

Web/Notes integration to get boost

By Barb Cole-Gomolski

LOTUS DEVELOPMENT Corp.'s Notes and Domino will soon offer advanced collaboration features to World Wide Web users, sources said.

They also said that at the company's annual user conference later this month, Lotus will introduce a set of interfaces that will be built in to the

Lotus, page 20

Photos, clockwise from top: Susan Luechinger, Merrill Lynch; Joe Boivin, Canadian year 2000 advocate; Paul Maszczak, C. R. Bard; year 2000 team, Nabisco; year 2000 team, Atlantic Energy

KIP HENRIE

The Year 2000 CHRONICLES

Chapter one

Wall Street's Merrill Lynch & Co. guards its Cobol programmers like blue-chip stocks. Halfway across the country, Union Pacific Corp.'s year 2000 project team got financial backing from senior management by painting pictures of stranded railcars, failed payroll systems and labor walkouts. And over at C. R. Bard, Inc.'s data center, you could almost hear the *Mission: Impossible* theme as the year 2000 team staged a late-night raid to wrest control of the company's source code from various IS divisions.

Every organization grappling with the so-called millennium bug has its own story of tribulations and triumphs in the face of an immovable deadline. *Computerworld* this week kicks off a long-term endeavor to follow six companies as they deal with the political, staffing and technical challenges of year 2000 projects.

The first installment of profiles begins on page 26. Next week, *Computerworld* will focus on contingency planning for year 2000.

NEWSPAPER

UP FRONT

Spin cycle

Microsoft last week dispatched senior executives to deliver contradictory messages. On one coast, Senior Vice President Steve Ballmer lamented that too many Microsoft customers see the company as a hyperaggressive bully. On the other, Vice President Brad Chase demonstrated why Microsoft is seen that way. (see story at right)

Chase's mission was to clarify Microsoft's stance on the Justice Department's demands that it stop bundling Internet Explorer with Windows 95. If I understood him correctly, the position boils down to this: The government shouldn't be allowed to set a precedent by which it can dictate what goes into Windows. Furthermore, taking Internet Explorer out of Windows is a disservice to customers.

From a business perspective, that position makes sense. Windows is the franchise, and Microsoft should fight vigorously to control it. By playing hardball with the government, the company stands to at least improve its bargaining position and may actually win an outright victory. But the argument that the position is motivated by some kind of customer altruism rings false.

This is a matter of control.

Microsoft could basically make this whole issue go away by simply taking the Internet Explorer icon out of Windows 95 and letting PC makers decide whether to put it back. So, why not just do that? Because this isn't an issue of customer service, it's a matter of control. It's hard to imagine how customers are served by having Microsoft executives tied up in legal wrangling for the next few months. But it's understandable why Microsoft would move mountains to avoid giving up one iota of authority over Windows.

Microsoft shouldn't be faulted for putting the interests of its shareholders first. But it also shouldn't say that its motives are something that they're not. This company is sometimes seen as a bully because it always fights to protect its interests.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"...and here's me with Cindy Crawford. And this is me with Madonna and Celine Dion..."

E-mail Rich Tennant at thefifthwave@tiac.net

It's time for a make-over

▸ *Users see need for a kinder, softer Microsoft*

By Carol Sliwa and Computerworld staff

EVEN AS Microsoft Corp. trotted out a SWAT team of high-level executives charged with polishing up its tarnished image, a random poll last week of 10 user sites found that all view the company negatively or at least understand why others do.

Most agreed that the company needs to overhaul its image.

"Requiring Internet Explorer to be in the operating system is hogwash. That doesn't make them look good. They have a little credibility problem they need to clean up. . . . What they're doing with Internet Explorer is kind of damaging their reputation," said Ron Frey, Internet business manager, Lands' End Direct Merchants in Dodgeville, Wis.

Microsoft's Brad Chase: **"We have to do what the judge wrote"**

Bolstered by feedback from information technology professionals and consumers, a seemingly chastened school of Microsoft executives hit the road last week in a bid to soften the company's "harsh" image.

Microsoft also wants to get out the message that its battle with the U.S. Department of Justice is part of a greater cause to preserve the rights of developers to design software products the way they want, said Microsoft Vice President Brad Chase.

Microsoft executives Steve Ballmer, Robert Herbold and Chase spent the week meeting with representatives from various media outlets, including *Computerworld*, to help people better "understand the interesting predicament we've been under" while trying to respond to a court order that will end "in a nonsensical result" — that is, Windows becoming inoperable, Chase said.

In published reports, Herbold, for example, acknowledged that the company needed to be more respectful to the court and the Justice Department.

Ballmer reportedly apologized for saying "to heck with [Attorney General] Janet Reno."

HARD SELL

Microsoft critics may be hard to convince.

To date, the public relations tour has produced headlines in national newspapers such as "Microsoft mulls way to sweeten its bully image."

"There's this thing they have about taking over the world which is pretty obnoxious. And they're as guilty as sin with regard to their dealings with the Justice Department," said James Wiedel, network manager at the University of Southern California in Los Angeles.

"Microsoft has a dominant position and should exercise their dominance in a more friendly way, but a PR trip is not going to do it," said Dennis Torrell, vice president of MIS at XSensormatic Electronics Corp. in Boca Raton, Fla. "It doesn't matter how friendly they say they are, it's how they act."

In an interview last week, Chase acknowledged that some have come to view the company "as belligerent, difficult or arrogant" as it contests Justice Department charges that it is violating a court order to remove its World Wide Web browser from its Windows operating system.

"We have to do what the judge wrote," Chase said, insisting that Microsoft has "the highest respect for the judge and the judicial process."

MISUNDERSTANDING?

Microsoft claims that it was ordered to remove "the software code that [it] distributes at retail as Internet Explorer." The Justice Department claims it misinterpreted the court's order.

Most recently, Microsoft tried to get the special master appointed by the judge to assist in the case to excuse himself.

XSensormatic's Dennis Torrell: **"It doesn't matter how friendly they say they are, it's how they act"**

The special master — Harvard University Professor Lawrence Lessig — refused.

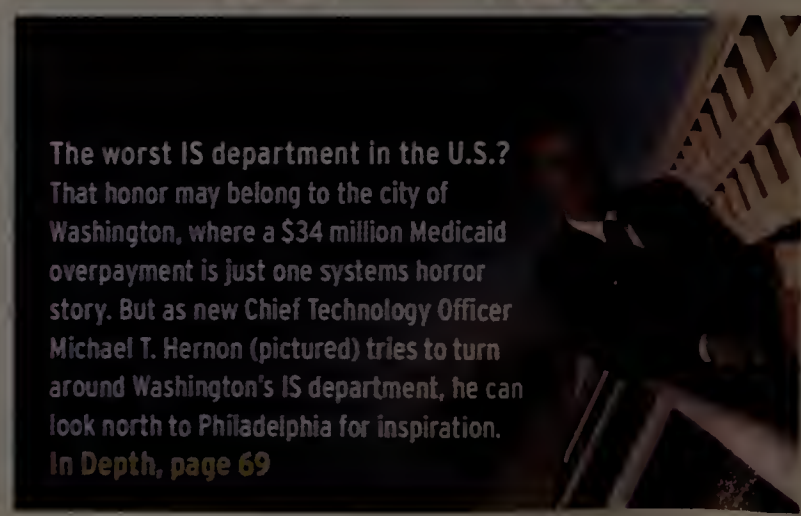
"It's like asking the crew of the Titanic to save the ship. No matter where the crew went to fix the problem, the problem always moved out ahead of them," said Rob Enderle, an analyst at Giga Information Group, Inc. in Santa Clara, Calif.

"The damage to [Microsoft's] image has been broadcast so broadly that any group of Microsoft employees is inadequate to reverse it," he said.

The Redmond, Wash., software company's negative image reminds Noel Adams, a systems programmer at Aurora National Life Assurance Co. in Inglewood, Calif., of IBM's image during its antitrust years.

"It's sort of like you have to do it our way and that they are dictating the way the rest of the industry moves," Adams said.

"We're not too concerned about this because their software is pretty good, so we buy it. [But] we don't want to see it get to the point where they drive out the competition," Adams explained. □



The worst IS department in the U.S.? That honor may belong to the city of Washington, where a $34 million Medicaid overpayment is just one systems horror story. But as new Chief Technology Officer Michael T. Hernon (pictured) tries to turn around Washington's IS department, he can look north to Philadelphia for inspiration.
In Depth, page 69

Colleges take Microsoft to school

By Gordon Mah Ung

SOFTWARE LICENSING

MICROSOFT CORP. officials plan to meet next month with higher education CIOs to discuss modifying the company's recently announced policy of no longer offering concurrent licensing.

Concurrent licensing allows organizations to pay for only those licenses used. For example, a school or company could have Microsoft Word available on 400 desktops and pay for only 100 licenses if the number isn't exceeded.

Microsoft began notifying customers late last year that it would end concurrent license usage in December because of declining interest in the program and a desire to simplify its pricing structures.

Microsoft has been pushing customers to license software on a per-CPU structure.

Although Microsoft claims waning interest, its main competitors, Corel Corp. in Ottawa and Lotus Development Corp. in Cambridge, Mass., said that they won't eliminate their programs and that they hope to pick up defectors from Microsoft products.

A Gartner Group, Inc. survey of 100 corporations in 1996 indicated that at least 62% took advantage of concurrent licensing, according to analyst Mary Welch.

University and college chief information officers became alarmed because they said they believed the Redmond, Wash., software company was applying corporate models to higher education institutions, which they say need more flexibility. Microsoft officials met last month with members of CAUSE, an association of higher education CIOs, to discuss the impact.

Welch, who follows licensing issues for Gartner Group in Stamford, Conn., said it is doubtful the group will have much sway with Microsoft.

"My expectation is if Microsoft does anything, they're going to make the price for an individual user in an educational institution less expensive," Welch said. "I would be very surprised if they backed off their decision to eliminate concurrent usage."

"This is not a cookie-cutter, one-solution-fits-all environment," said Arnold Hirshon, vice provost for information resources at Lehigh University in Bethlehem, Pa. Lehigh has a site license with Corel and probably won't be able to pay for both suites if push comes to shove. □

Intel, Digital confident FTC will approve deal

By Jaikumar Vijayan and April Jacobs

INTEL CORP. AND Digital Equipment Corp. last week remained optimistic that a patent infringement settlement reached between the two in October will be approved by the Federal Trade Commission (FTC).

The companies were responding to published reports last week that claimed that the deal was in jeopardy because the FTC is concerned about possible antitrust violations arising out of the settlement.

The FTC is reviewing the $700 million sale of Digital's Alpha manufacturing facilities to Intel as well as the patent and cross-licensing agreements the companies negotiated last year to end a bitter and escalating patent feud.

ROUTINE REVIEW

Officials at both companies confirmed that the FTC asked them for additional information on the deal late last month, but they dismissed that as routine.

"Digital is confident that its settlement will be approved by the FTC. We have not received any information indicating that the FTC will challenge the agreement," a Digital spokeswoman said.

Intel, the subject of a wider antitrust investigation by the FTC, responded similarly.

"When we announced that settlement, we expected it would take three to six months for the review, and nothing has changed. The only thing that has happened is that we received a second round of questions from the FTC, and that's procedural," a spokesman said.

FTC spokeswoman Victoria Streitfeld last week refused to comment on the reports but confirmed that the FTC is investigating Intel's proposed purchase of semiconductor company Chips and Technologies, Inc. in San Jose, Calif.

"The FTC staff has notified us that they will let us know of their decision [on whether to challenge or approve the proposed purchase] before Jan. 13," the Intel spokesman said. Intel announces its fourth-quarter earnings on that date.

MARKET MONGER

The FTC's growing scrutiny of Intel stems from the fact that the chip giant today holds a dominating — and what some analysts say is a near monopolistic — share of the overall chip market. There also is concern about the company's growing influence in related technologies through acquisitions such as Chips and Technologies.

Despite that kind of domination, the company's practices have been less than monopolistic, and competition is stronger than before, said Jim Feldhan, president of Semico Research Co. in Phoenix.

"They don't really follow monopolistic pricing strategies, and they have been very aggressive in trying to move to new architectures," Feldhan said. One example is Intel's long-established practice of rolling back prices on its processors every quarter, he said.

"Their strategy to keep competitors away has been to keep raising the barriers to entry," Feldhan said. □

PAL ARESU/PHOTOGRAPHY, CHRIS MCCORMACK/DIGITAL IMAGING

IT Leaders' CHOICE

Dell and Hewlett-Packard have won the hearts of the people who count: the IT leaders who make the decision to buy their products. Dell and HP took seven of the 16 top honors in the first Computerworld IT Leaders' Choice Awards. More than 800 *Computerworld* readers voted for the products that return exceptional value to their companies.

Review Center, page 63

MasterCard makes SET more attractive

▸ *Changes chargeback rules to lure merchants*

By Sharon Machlis

MASTERCARD International, Inc. will ease one of its financial rules for merchants that adopt the Secure Electronic Transaction (SET) protocol, in hopes of luring more online businesses to use SET.

Under the new policy, which will take effect April 1, a merchant can dispute a consumer's claim that an order was never placed and work with the card-issuing bank to investigate. Now, merchants are simply hit with a so-called chargeback, meaning they are forced to eat the cost of the disputed transaction.

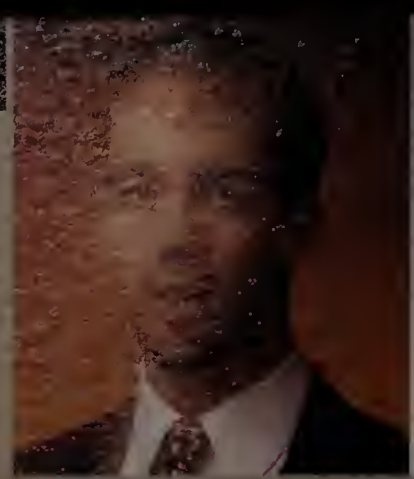
"I think it's a step in the right direction," said Ron Frey, Internet business manager at Lands' End Direct Merchants in Dodgeville, Wis. "But for us to do something with SET, we're going to have to hear from our customers that they want us to be in that arena."

"Going to SET is a very nontrivial thing in terms of cost. Without a financial incentive, nobody is going to do it."
– Ira Machefsky, Giga Information Group

Visa International, Inc. in California changed its chargeback rules in September to be even more favorable for online stores. Visa said a merchant can't be hit with a chargeback for a SET-compliant transaction if a consumer claims he didn't make the order.

"Going to SET is a very nontrivial thing in terms of cost," said Ira Machefsky, an analyst at Giga Information Group in Santa Clara, Calif. "Without a financial incentive, nobody is going to do it."

He said the chargeback changes are a good first step but transaction fees for SET also must be reduced for merchants to be interested in using the emerging electronic-commerce standard. □



An intranet helped Gulf Canada get accurate financial data from far-flung workers, Kevin Rasmussen says. Corporate Strategies, page 39

Want to help lift your staff to new heights? We have 15 tips on how to give your employees better and more effective feedback. Managing, page 58

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ETC.

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Microsoft sets its sights on OLAP market

▸ *Company releases SQL Server 7.0 beta*

By Craig Stedman

MICROSOFT CORP. is getting ready to throw its weight around in the data warehouse. And that could mean price relief for users and big headaches for rival vendors.

Sources close to Microsoft confirmed that the software company is shipping a second beta of a long-promised SQL Server database upgrade with built-in data warehousing tools and a variety of new features aimed at boosting performance and scalability.

A test version of a companion data analysis server will follow later this month, the sources said. Industry analysts will be briefed this week on the beta shipments, and a public announcement is due shortly, they added.

KATHERINE LAMBERT

Aristotle's James Xu: **Sticking with Microsoft for an OLAP server means "I don't have to deal with two different companies"**

Microsoft officials declined to comment, saying only that SQL Server 7.0 and the analysis server, code-named Plato, will be ready for commercial release sometime this year.

And the sources close to Redmond, Wash.-based Microsoft said the company hasn't finalized pricing or decided whether Plato will be bundled with SQL Server.

But some analysts already are predicting that Microsoft will change the decision-support business in a big way.

Analysis servers "have always been overpriced," and the pricing trend has been upward. "It will now go down," said Richard Creeth, a consultant in Norwalk, Conn., and co-author of a World Wide Web-based newsletter on the online analytical processing (OLAP) market.

OLAP servers typically cost $2,000 per user and up, Creeth said. But the combination of SQL Server 7.0 and Plato should cost "at worst a few hundred dollars a user," he said. "This will take data warehousing into places that haven't considered it because it's too expensive."

Aristotle Publishing, Inc., based in Washington, got the second test release of SQL Server 7.0, code-named Sphinx, two weeks ago.

Performance boosters such as row-level data locking make it seem "like the first true version of a Microsoft database," said James Xu, vice president of technology at Aristotle.

Xu, who runs a 75G-byte voter information database on SQL Server, is also interested in Plato for statistical analysis and other complex querying.

Sticking with Microsoft for an OLAP server "seems like a natural choice," he said. "I don't have to deal with two different companies that are going to kick the ball back and forth [if problems arise]."

READY FOR IMPACT

Wayne Eckerson, an analyst at Patricia Seybold Group in Boston, flatly predicted Microsoft will become the dominant force in data warehousing this year. "This just wreaks havoc on all the [OLAP] vendors," he said. "It's going to be nasty."

Not everyone is so sure.

Microsoft's products will appeal to Windows NT shops, said Don MacTavish, an OLAP analyst at Meta Group, Inc. in Stamford, Conn. But for big analysis applications, users are still making "strictly Unix-based" buying decisions, he said.

For some users, though, the Microsoft name is enough.

"Betting the farm on Microsoft is not a bad thing. And Bill Gates can get in the people who can make it all scale," said Sean Connolly, vice president of technology at San Francisco-based Stockpoint, which provides stock data via the Web.

Stockpoint uses SQL Server and has potential interest in the OLAP software, he said. □

Fast and Friendly

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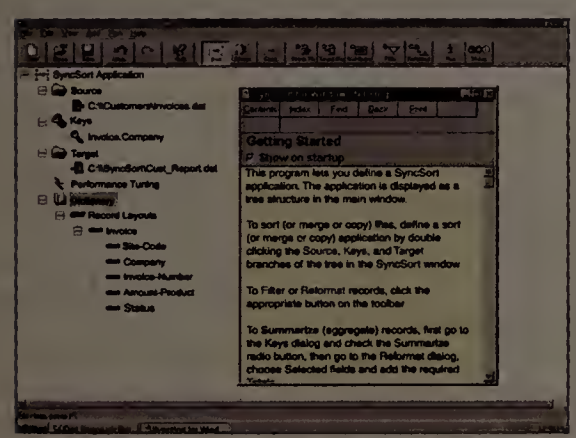

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Top-tier Unix makers rally around Intel's Merced chip

By Jaikumar Vijayan

INTEL CORP.'S 64-bit Merced chip, which isn't slated to ship until 1999, is stirring activity in the Unix camp, which sees the technology as a weapon against Windows NT and as a way to rally developers to the Unix platform.

The release is also expected to result in fewer versions of Unix, with only the top few players slated to port their versions of Unix to Merced. Smaller vendors are expected to choose a larger vendor with which to partner and merge their Unix versions.

The upgrade to a 64-bit operating system also could spell potential disruptions and uncertainty for some users who will need to recompile their existing applications.

"There is going to be not just a Unix flavor change, but also a processor-architecture change" during the next couple of years, warned Brian Richardson, an analyst at Meta Group, Inc. in Boston.

The jockeying for position has already begun. Just last week, Digital Equipment Corp. and Sequent Computer Systems, Inc. agreed to develop a common 64-bit Unix version for Merced.

Code-named Bravo, the operating system will also feature technologies from Digital Unix Sequent's Dynix/ptx Unix version.

Both vendors also will try to rally broad OEM and independent software vendor support for the common Unix.

Digital's move sets the stage for what analysts are predicting will be a battle with Sun Microsystems, Inc., Hewlett-Packard Co. and SCO, Inc. for Merced mind share.

All those vendors are actively porting their Unix versions to Merced, and with the exception of HP, all also are courting the dozen or so smaller Unix vendors and their application developers to their respective camps. Smaller Unix vendors include Data General Corp., Siemens/Nixdorf Informationssysteme AG and Unisys Corp.

"The upshot of all this is going to be a consolidation in the number of Unix vendors and serious competition for the leading Unix position on Merced," said Tony Iams, an analyst at D. H. Brown & Associates, Inc. in Port Chester, N.Y.

THE BRIGHT SIDE

The fallout will be mainly positive for users, said Scott Andersen, director of technology at Computer Sciences Corp., lead systems integrator for Hyatt Hotels and Resorts in Oakbrook Terrace, Ill.

For instance, the merger between Digital's 64-bit Unix with Sequent's highly scalable Dynix/ptx will only strengthen the combined version, he said.

But, "you see all these arch-rivals coming together sitting around a camp fire, holding hands, singing songs ... and you wonder how long it will last," Andersen said.

"When you get into these kinds of situations, there is an inherent slowdown in the availability of new functionality over the next couple of years," he said.

Much of the recent activity around Unix is also coming from a growing realization that Windows NT simply may not be as ready as Unix to exploit the terprise reliability that Unix has offered for a few years now.

"We are seeing a change in strategy on the part of the customer and the vendor around Unix and Windows NT," Henkel said. "It is not that people are losing their enthusiasm for NT. But they are recognizing that it is not practical to consider NT for viable high-end enterprise applications at least for the next few years."

The promise of 64-bit technology is its ability to let users run large applications, such as databases and online transaction processing, much more efficiently than 32-bit technologies. □

Unix vendors gear up for Merced

	Advantages	Weaknesses
Digital Unix	Provides mature 64-bit environment	Doesn't ship on Intel x86
	Intel x86-based OEMs calmed by Digital's focus on Alpha	Independent software vendors must still recompile Alpha applications for Merced
HP-UX	Provides full 64-bit environment on PA-RISC	Doesn't ship on Intel x86
	Merced promises binary compatibility with PA-RISC	No OEM agreements
Sun Solaris	Ships on Intel x86	Still a 32-bit environment
	Doesn't ship Intel x86 system that would compete with OEMs	OEMs fearful of aggressive Sun Microsystems sales force

Source: D. H. Brown & Associates, Port Chester, N.Y.

Unix convergence is a good thing, agreed Ron Hawkins, director of technology at Millipore Corp. in Bedford, Mass.

His main concern is exactly how the Sequent deal with Digital will impact future upgrades and enhancement of Millipore's Dynix/ptx environment.

64-bit capabilities of Merced, said Tom Henkel, an analyst at Gartner Group, Inc. in Stamford, Conn.

Microsoft has said Merced will be a strategic development platform going forward, but Henkel argued that NT still won't offer the same kind of en-

Users plead for interoperability, uniform encryption standard

By Laura DiDio
SAN FRANCISCO

THE LACK OF standards and interoperability among cryptography tools is the biggest impediment users face in their bid to do secure Web-based electronic-commerce transactions.

New encryption tools and the latest initiatives to bring standardization to the fractured cryptography market will take center stage here this week at the fourth annual RSA Data Security, Inc. conference.

But attendees looking for a quick fix will be sorely disappointed because real standards are at least 18 months away.

Forthcoming cryptographic standards will be driven by both the government and the vendor community, led by IBM, RSA Data Security, MasterCard International, Inc., Visa International, Inc., Microsoft Corp. and Sybase, Inc.

Last year, MasterCard and Visa released the Security Electronic Transactions (SET) software, which gives businesses and consumers the ability to safeguard online transactions by encrypting their credit-card numbers. The major drawback to SET: There are several conflicting versions of the software.

Microsoft, meanwhile, plans to embed a complementary piece of software — its own Cryptography application programming interface — in its next-generation Windows NT 5.0 operating system. That would integrate the various encryption components and ease management woes. But Windows NT 5.0 won't ship for a year.

"Cryptography is crucial to us and our customers for the high-level security it will bring to our online transactions and internal networks.

Currently, though, there's no single encryption product or protocol that will work across all our operating systems and applications, said Mike Sidell, senior manager of business systems at Charles Schwab & Co. in San Francisco.

Disparate network operating systems, applications and electronic-mail data transmissions, coupled with the burgeoning use of the Internet and electronic commerce, have turned cryptography into a security "Tower of Babel and a network administrator's nightmare," agreed Charles Cresson Wood, an information security consultant at Baselin Software, Inc. in Sausalito, Calif.

ERIC MILLETTE

Charles Schwab's Mike Sidell: A universal encryption tool is needed to guarantee customer security

"Overall, encryption is *the* most important tool in information security today," Wood explained.

Businesses, Wood added, need much wider deployment of cryptography for uses such as secure Internet commerce, telephone banking over dial-up lines and telecommunications connectons by mobile workers.

ONE TOO MANY

The stumbling block: Each application uses a different encryption standard with no one standard tying them all together, Wood said. For example, E-mail vendors use the Pretty Good Privacy encryption tool; World Wide Web-based electronic-commerce applications use the Secure Socket Layer (SSL) protocol; and bank wire transfers use the Data Encryption Standard.

Charles Schwab is a classic example of a company sorely in need of advanced, standardized cryptography mechanisms. On a busy day, Schwab will handle up to 150,000 trades, and nearly 50% of those transactions are done online, said Ed Ehrgott, the brokerage's director of internal audit.

"SSL has been working just fine for us. But we need standard encryption tools to facilitate communications between our internal Unix and Windows NT servers," Ehrgott said. "We've taken on additional risks because of our inability to encrypt certain types of information. Right now, we're devoting 15 network managers to test the feasibility of various encryption solutions." □

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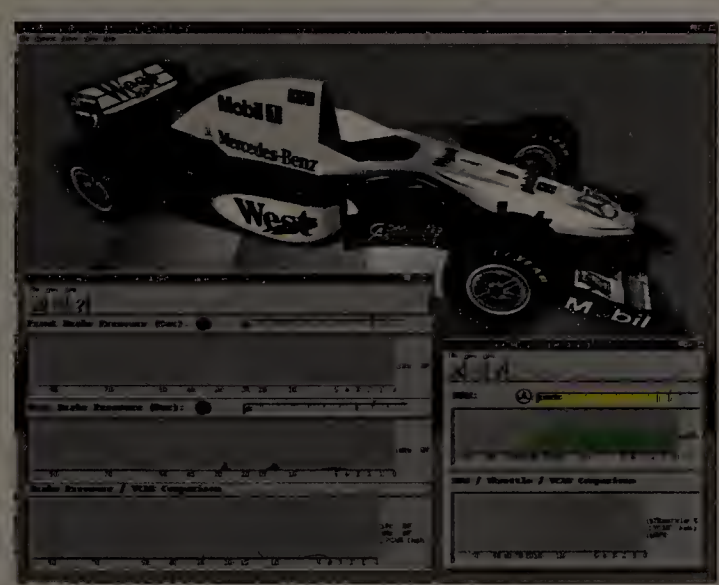

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FRANKLY SPEAKING

Year 2000 kick start

FRANK HAYES

IT'S 1998. DO YOU KNOW where your future is?

For a lot of IS shops, the answer — for the first time in years — is a resounding yes. And the reason appears to be that notorious future-killer, the year 2000 problem.

There's supposed to be more uncertainty than ever in the information technology business. Major vendors are under legal attack or staggering from their own missteps. Highly touted technologies don't work as promised or still haven't arrived.

Change is explosive. The talent pool is shrinking, and there's no help in sight. By rights, with all this uncertainty, there should be fear and panic in the streets of ISville.

But ironically, there seems to be less uncertainty than ever.

Decisions are being made — real decisions, fish-or-cut-bait decisions about what problems to solve, what projects to do and what technologies to use.

How did IS suddenly get so decisive? I think it's because with the year 2000 crisis, we've finally come face-to-face with a problem that can't be delayed, diluted or denied.

Fear? Uncertainty? Nobody in IS can afford those luxuries anymore.

(Of course, the press never tires of year 2000 stories. For proof, see the beginning of our "Year 2000 Chronicles" on page 26.)

With no way out, no time to spare and critical resources in short supply, IS people have rolled up their sleeves and once again taken their destinies in their own hands. And not just in dealing with that ticking time bomb, either.

Only a couple of years ago, IS shops made vague, mumbly noises about sorta-kinda planning to adopt Windows 95 within a year or so, maybe. Now we're hearing crisp, clear choices — shops say they'll skip to NT, or hold firm at Windows 3.1, or put in Windows 98 as soon as it arrives.

Just one year ago, IS toyed with every exotic Internet product that floated by. Now playtime is over, tools come from a shortlist and development teams are grinding out real applications for the Web — applications that bring in income. There's no more waffling over enterprise packages from SAP and Baan and PeopleSoft. No one is starting multiyear installation projects with endless tweaking and twiddling of parameters. Now IS shops either accept the basic business model built in to these enterprise packages and install them fast or take a pass on the whole project.

Fear and uncertainty? Panic in the streets? Forget it. Nobody in IS can afford that kind of luxury anymore. Not with new hires so overpriced and undertrained. Not with pricey new products and upgrades that offer so little added benefit compared with what you shelled out for last year. Not with vendors clearly too busy jockeying for position and elbowing each other out of the way to provide real IT leadership.

Instead, IS people are providing their own IT leadership — and it's refreshing. This is what IS is supposed to be about: bringing everything you've got to bear, solving business problems and bringing your organization business advantage.

The future's in your hands — and that's a beautiful thing. There's just one catch: You still have to fix your year 2000 problems. All the newfound confidence and decisive action in the world won't be much good if your systems melt down when the millennium dawns.

You can still finish that fix — especially if you're merciless in deciding which systems and users will survive and which must be sacrificed to buy the time and resources you need.

Thanks to the year 2000 crisis, you've got a new grip on the future. Just make sure that — thanks to the year 2000 — that future doesn't slip away. □

Hayes is Computerworld*'s West Coast bureau chief. His Internet address is frank_hayes@cw.com.*

SHORTS

IT clash dooms merger

Citing their different approaches to information systems, MedPartners in Birmingham, Ala., and PhyCor, Inc. in Nashville called off their planned $6.25 billion merger. Joseph C. Hutts, president, chairman and CEO of PhyCor, said "significant operational and strategic differences" prevented the two physician management firms from pulling off a successful merger. Hutts and other executives from the firms declined to elaborate.

Welsh leaves; IBM shuffles execs

IBM is shuffling its top management staff in the wake of an extended medical leave taken by Dennie Welsh, head of IBM's $19 billion Global Services Division. Welsh will be succeeded by Sam Palmisano, who now heads IBM's PC business. Strategic sales group head Dave Thomas will replace Palmisano, and S/390 chief Linda Sanford will take over the sales spot.

Dennie Welsh

Sun releases Personal Java

Sun Microsystems, Inc. released Personal Java 1.0 last week, which means Java-enabled screen phones, pagers and hand-held computers could be just six to eight months away. Licensees Nortel, Nokia and Telxon are building Personal Java into their products. Also, SunSoft, Inc. is getting out of the object request broker (ORB) business and directing its 600 corporate ORB customers toward Visigenic Software, Inc.'s VisiBroker. Sun is discontinuing its NEO Object Request Broker and pointing customers toward a Common Object Request Broker Architecture package.

Flight-tracking beta fails

Air traffic controllers responsible for flights in the Pacific lost a key part of their tracking system for 16 hours last week when tests on new software misfired. A Federal Aviation Administration official said the system problem created no flight delays. The Oakland Air Route Traffic Control Center, which was affected by the blackout, is responsible for flights in an area that encompasses about one-tenth of the globe.

AT&T buys local carrier

AT&T Corp. in Basking Ridge, N.J., last week announced it will merge with local carrier Teleport Communications Group in Staten Island, N.Y. The deal is valued at $11.3 billion in stock. Analysts said the move could help bring the $52 billion telecommunications giant into the local voice and data services market quickly, particularly for business customers.

Microsoft, DOJ back in court

Microsoft Corp. and the Department of Justice are due back in federal court this week to discuss how hard it is to remove the Internet Explorer World Wide Web browser from Windows. Another topic of discussion could be Microsoft's request to have a court-appointed special master removed from the case because Microsoft charges he is biased against the company. Justice dismissed Microsoft's complaint as overblown.

Amazon goes off-line

High-profile Internet-based merchant Amazon.com, Inc. (*www.amazon.com*) went off-line for 11 hours last Wednesday. Amazon said very little about the cause of the failure, other than to describe it as a "simple internal technical problem" that didn't affect security or databases. It returned to full service at 9 p.m. PST Wednesday. The last outage the system experienced — back in June — lasted a day, an Amazon spokeswoman said.

Networking on a chip

Osicom Technologies, Inc. in Waltham, Mass., last week released NetArm, a silicon chip that consolidates all hardware and software subsystems for Ethernet or Internet connections onto a single chip. It was created to simplify design of networked products by supplying drop-in support for a range of networking protocols. The chips cost $40 each in quantities of 20,000.

AOL sues spammers

America Online, Inc. in Dulles, Va., filed a federal lawsuit last week against three companies that send out mass electronic mail, seeking to stop the spammers from sending unsolicited E-mail to AOL members. AOL is seeking unspecified damages. The suit names IMS in Knoxville, Tenn.; Gulf Coast Marketing in Baton Rouge, La.; and sister companies TSF Marketing and TSF Industries in Riverside, Calif. A spokesperson for the National Organization of Internet Commerce, which TSF Marketing sponsors, said AOL is "manipulating the Internet" by not letting members decide themselves whether to receive spam.

SHORT TAKES Oracle Corp. is slated to announce a deal to bundle Foster City, Calif.-based Wallop Software, Inc.'s team-based Web development tools with a release of its Oracle Application Server software. ... **IBM** last week said London-based General Accident Fire and Life Corp. will buy 4,000 Network Stations in IBM's largest network computer sale to date.

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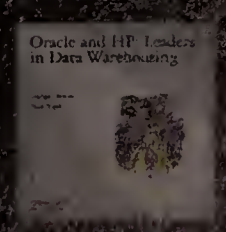

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Asian woes don't translate into PC deals

▸ *Users aren't seeing benefits from falling component prices*

By April Jacobs and Tim Ouellette

DESPITE A WEAK Asian economy and a continued drop in component pricing, resulting PC and server price cuts have been minimal. And even if prices do begin to fall, observers said corporate users are unlikely to go on any buying sprees.

That's because component prices, along with PC and server prices, have been dropping steadily for more than a year, users and analysts said. There is little connection to the recently weakened Asian economy, they said.

For example, Round Rock, Texas-based Dell Computer Corp. lowered prices last week on its desktops from 2% to as much as 15% for some Pentium II-based systems, spurred by lower costs for components such as CD-ROM and hard drives and memory. It was the only vendor to do so, due in part to the Asian economy.

Rival Compaq Computer Corp., based in Houston, wouldn't comment on pricing issues and hasn't announced any price cuts recently. IBM officials in Armonk, N.Y., declined to speculate on future pricing. Hewlett-Packard Co. in Palo Alto, Calif., didn't respond to press calls.

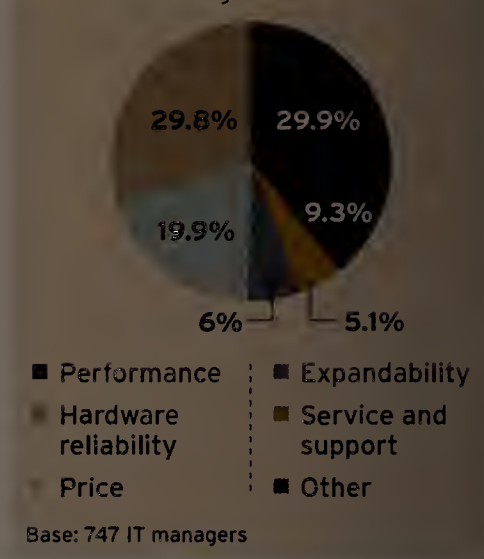
ANYBODY'S GUESS

"This has been going on for more than a year. Get out your crystal ball [to figure out] where the Asian economy goes from here," shrugged one high-level executive at a top PC maker, who asked to remain anonymous.

"It is a lot easier for Dell and Gateway to respond when components prices are dropping. They are updating their Web sites and prices practically every hour," said Michael Autrey, a PC analyst at ARS, Inc. in Irving, Texas.

CHOOSING A PC SERVER

Most important factor when selecting a PC server



Base: 747 IT managers

Source: Datapro, Inc., Cambridge, Mass.

But he also noted that Compaq and HP are becoming more efficient in their build-to-order models and may be able to close the price gap between their products and the competition's.

Instead of getting big price cuts, users might find they can buy higher-performance machines for as much as they would have spent on lower-grade machines just a few months ago, according to Dell spokesman Rick Scott.

Several users reported they are paying as much as 50% less for better machines than one year ago, and most said they already have volume discount pricing under purchase agreements with vendors.

Larry Garden, manager of technical operations at Brewers Retail, Inc. in Mississauga, Ontario, said lower pricing for Pentium IIs has allowed him to buy those machines for the same amount of money he would have spent for plain Pentium MMX machines last fall.

FASTER UPGRADES

John Delta, director of operations at The Nasdaq Stock Market, Inc. in Washington, said his company might consider buying a few additional World Wide Web servers and laptops if prices fall dramatically.

"It might allow us to speed up our upgrade process, but the upgrade cycle itself is already planned for the coming year for desktops," he said.

However, because component prices have been dropping for a while, trends such as that make Delta and others say they will buy at a scheduled pace — and stick to their current depreciation cycles.

Also putting a damper on enthusiasm is that users generally focus on factors such as reliability, performance and service. Pricing issues take a backseat, analysts said.

Jane Wright, an analyst at Datapro Information Services Group in Cambridge, Mass., said a recent study of 747 corporate information technology managers found that only 19.9% cared most about price when purchasing PC servers. □

Another Asian threat

The Asian financial flu could claim some victims in the PC market.

Even though the expected cuts in PC prices may not be dramatic, there is concern that smaller PC makers could see their margins disappear. This comes at a time when they are already feeling the pinch from top-tier competitors such as Dell, Compaq and Hewlett-Packard, which continue to eat up market share.

For example, AST Research, Inc. in Irvine, Calif., announced in December that it would slash a third of its workforce. And just last week, Singapore's KT Technology shut its doors, while Unisys Corp. announced plans to drop out of the PC manufacturing business and instead negotiate a partnership deal with another PC maker.

Unisys CEO Lawrence Weinbach said the Blue Bell, Pa., firm wasn't generating enough volume in the cutthroat PC market to make a decent return.

Even Packard Bell NEC, Inc. is feeling pressure from part owner NEC Corp. to trim costs and turn a profit. Despite just receiving a $300 million boost from NEC, the Sacramento, Calif., firm plans to cut back on telephone support and on-site service after consistently losing market share last year. — Tim Ouellette

& **PC vendors expected to pass on savings from Pentium II price dip.**
Page 55

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Microsoft invades PalmPilot territory

▸ *Windows CE devices will offer better memory and more choice — but users love those PalmPilots*

By Kim Girard

PALMPILOT MAY NOT have the whole world in its hands for long.

Targeting 3Com Corp., maker of the hottest-selling handheld, Microsoft Corp. plans to ship a pared-down version of its Windows CE 2.0 operating system for a competing array of handheld devices by second quarter.

That means users soon will have a wide selection of pocket-size Windows CE devices. Among the hardware vendors that hold a Microsoft license are Casio Computer Co., Philips Electronics N.V., LG Electronics, Inc., Uniden America Corp. and Samsung Electronics America.

The Windows CE devices will have at least a 32-bit processor, a PC port adapter and a small modem slot. Casio and Philips plan to roll out the E-10 Palm PC and the Nino 300, respectively, in the second quarter (see chart).

"The 800-pound gorilla has finally shown up," said Mike McGuire, an analyst at Dataquest in San Jose, Calif., referring to Microsoft.

CLASH OF THE PALMTOPS

	3Com's PalmPilot Professional	Palm PCs (various vendors)
Size	5.7 ounces	A little bigger than the PalmPilot
Memory	1M byte of RAM	2M to 8M bytes of RAM
Screen	160 by 160 pixels	240 by 320 pixels
Features	Date book, address book, to-do list, notepad, expense report, E-mail, calculator and pen-input alphabet. Can be used with Microsoft Mail and Exchange, Lotus CC:Mail or MAPI, VIM or POP3 E-mail packages.	Scaled-down version of Windows CE 2.0 operating system with a 32-bit processor, Pocket Outlook for calendar, to-do list, contact management and E-mail. Also includes voice recorder, handwriting converter, paging support and Web browsing capabilities.
Price	$399	$299 to $499

ONE MILLION STRONG

But it won't be easy for the Microsoft-backed devices to compete with the PalmPilot, which has developed a growing group of enthusiastic users. More than 1 million PalmPilots have been sold since the device was introduced in April 1996.

Dataquest said the PalmPilot held 66% of the handheld market share for the first half of last year, partly because of its ease of use and handy pocket size.

Dan Sugars, technical support specialist at Managed Health Networks, Inc. in San Rafael, Calif., said he is unlikely to dump his PalmPilot for a Microsoft device, despite the newcomer's greater memory capacity and other enhancements.

"Microsoft runs slow, clunky programs that are capable of doing lots of things but may be overkill," said Sugars, who uses the PalmPilot Professional with a 1M-byte memory to store IP addresses and 200 toll-free telephone numbers. "The Pilot does what you need it to do without a lot of extra stuff."

The pen-based Palm PCs, which will cost from $299 to $499 and will have 2M to 8M bytes of memory, will feature a 320- by 240-pixel screen and can be used to record short voice messages. Software will include a calendar, contact manager and electronic mail.

Unlike Microsoft's larger CE devices on the market, which are more than twice the weight and larger than the 5.7-oz. PalmPilot, Palm PCs won't have keyboards because they depend on handwriting recognition.

Larger CE devices, which haven't sold well, are "too big to put in your pocket," said Philip Redman, an analyst at The Yankee Group in Boston. "That's why you'll see them go the way of the dinosaur." □

Apple gets good news break; CEO search on slow track

By Kim Girard

MAYBE Apple Computer, Inc. doesn't need to find a new CEO just yet.

After all, the Cupertino, Calif.-based company, under interim CEO Steve Jobs, is riding a miniwave of good news. Macworld attendees in San Francisco were cheered last week by new product rollouts and a report that the company is expected this week to post a $45 million profit for the first quarter.

But James Staten, an analyst at Dataquest in San Jose, Calif., expressed doubt that Apple's profitability would continue through the next quarter — typically the company's worst — particularly without an expanding user base. Others scoffed at the $45 million profit, crediting it more to company-wide cuts and the lack of competition from shutdown Macintosh clone makers than any sustainable increase in product sales.

"For the size of the company, that level of profit is insignificant," said Harry Fenik, an analyst at Zona Research, Inc., in Redwood City, Calif.

Even so, several enthusiastic Macintosh users credited Jobs with reviving confidence in Apple and starting to pull the company back together after a year marked by foundering leadership and more than $1 billion in losses. Jobs used his keynote speech to announce several Apple products, including a free upgrade to Mac OS 8, a new version of QuickTime, some G3 computer add-ons and Microsoft Corp.'s Office 98 Macintosh Edition.

ASSOCIATED PRESS

Interim Apple CEO Steve Jobs used his Macworld keynote speech to announce several products

There was no mention of Apple's network computer strategy, championed by board member Larry Ellison, or a plan to break in to the sub-$1,000 desktop computer market to stay competitive with PC makers that have dropped prices.

Apple can't afford to stay out of that market for long, Staten said. He noted that the company's least-expensive computer sells for about $1,500.

Questions also linger about Apple's long-term viability, about who will eventually take the helm as CEO — playing June to Jobs' Ward Cleaver, as one analyst described it — and about whether the board is even in any hurry to fill the post.

Fred Anderson, Apple's chief financial officer, said the company is in no rush to hire, although a search to replace ousted Chairman and CEO Gilbert F. Amelio continues after six months. Though Jobs has said he doesn't want to take the CEO's job permanently, observers note that he is probably one of the few capable executives who has a passion for saving Apple.

"The existing management team wants [Jobs], but he hasn't decided on that," Anderson said. "There are people interested in the job, but no one suitable to be CEO."

Some users said Jobs is no choice for the long haul.

"I can only hope that [Jobs] doesn't take the job," said Alex Whitney, information systems director at Lowe McAdams Healthcare, a pharmaceutical advertising agency in New York that manages 70 Macintoshes. He said that as long as Jobs remains on Apple's board, the company will "have trouble finding a CEO to stand beside the star that Steve is."

BUSINESS SENSE NEEDED

"He's not the man for the long term," said Chip Colby, IS manager at United Advertising Publications, Inc. in Dallas. "Part of what you need from a CEO and a chairman is someone with a better grasp of running a business."

Meanwhile, other observers questioned what candidate would want the CEO job, if it meant answering to Jobs.

"It doesn't matter what title they give him, he's still controlling Apple," said Kevin Boone, systems administrator at Canam Steel Corp. in Point of Rocks, Md., which designs steel infrastructures on Macintoshes.

While Jobs' return to Apple and Microsoft's recent investment in the company have prevented some Macintosh users from abandoning the platform, Apple's challenge now is to expand its user base, Dataquest's Staten said. □

Staff writer Wylie Wong contributed to this story.

APPLE'S MACWORLD PRODUCT ANNOUNCEMENTS:

- ▸ Mac OS 8.1 will offer faster application launching from new virtual memory and disk cache systems, better PC compatibility with PC Exchange 2.2, built-in Digital Video Disk (DVD) Universal Disk Format — which reads video DVDs and DVD-ROM interactive games — and improved Java compatibility and performance
- ▸ Microsoft's Internet Explorer browser will ship as the default browser with the operating system upgrade
- ▸ Oracle Corp. pledged to port all of its more than 40 business and financial client/server applications to the Macintosh

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Netscape expects a loss, drawing unwanted attention

By Carol Sliwa

NO ONE'S PRESSING any panic buttons.

But customers, analysts and stock watchers will keep a close eye on Netscape Communications Corp. as the company reorganizes and cuts staff in the wake of the first losing quarter in its 3 1/2-year history.

Eli Lilly's John Swartzendruber: Netscape's reaction to its losses will be most interesting

"Everyone has their ups and downs. For me, it'll be more interesting to see how they react to this particular quarter," said John Swartzendruber, manager of information technology research and development at Indianapolis-based Eli Lilly and Company.

"I think they'll create a niche, and they'll have a place in the market long-term," said another customer, Roger Walters, chief information officer at Booz, Allen & Hamilton, Inc. in McLean, Va. "It's a well-run company."

Netscape expects to report a fourth-quarter net loss in the range of $85 million to $89 million, and the company said it expects an annual net loss as high as $117 million after merger-related charges and restructuring costs.

Although annual revenue may hit a respectable $539 million, the fourth-quarter revenue estimate of $125 million to $130 million fell short of analysts' predictions. That caused the company's stock to plunge more than 20% on the day of the announcement.

Netscape officials blamed the revenue shortfall, in part, on declining sales of Netscape's stand-alone client software — the inevitable result of "the free browser competition" with Microsoft Corp., which gives its World Wide Web browser away free.

Now Netscape faces the big decision of whether to start giving away its browser. Netscape CEO James Barksdale said that decision will be made within two weeks (see story at right).

BROADER HORIZONS

"Browser share is the single most important thing Netscape has. And if they lose [that], it's going to cause them problems in all other areas — servers, services, electronic commerce as well as Web site advertising," said Bruce Smith, a research analyst at Merrill Lynch & Co. who has been advocating for over a year that Netscape should give away its browser.

Although Netscape recognizes the need to "attack on the client side," it also will try to better focus itself on electronic commerce, messaging and custom Internet solutions for enterprise customers, Barksdale said.

Enterprise software and service revenue was lower than expected in the fourth quarter because of competition and longer sales cycles.

Sometimes enterprise customer deals had to be closed for less revenue than expected, because of pricing and competitive pressure, said Mike Homer, Netscape's executive vice president of sales and marketing.

"I think Netscape is trying to run away as fast as it can from where Microsoft dominates," said Allen Bonde, an analyst at Boston-based Extraprise Group, Inc. "And I think they're pretty well-positioned, believe it or not."

Netscape's acquisition of the Actra electronic-commerce joint venture and application server vendor Kiva Software Corp. — coupled with a continued focus on open standards — should put it in a strong position against Microsoft, Bonde said.

But one analyst feared the revenue shortfall "may be the beginning of a death spiral" for Netscape.

"It'll scare off buyers, which will in turn reduce revenue, which will then scare off more buyers," said Rob Enderle, an analyst at Giga Information Group in Santa Clara, Calif.

Often dubbed the fastest-growing software company in history, Netscape served notice that staff cuts can be expected.

Company officials declined to provide specifics, but one financial analyst claimed he was told that 15% of the staff would be affected. With a workforce of about 2,400, that would mean 360 people. □

Barksdale speaks

In an interview last week, Netscape CEO James Barksdale held forth on several topics:

Giving Netscape's browser away:
I'm sure we're going to be criticized one way or the other. I mean all the people who don't have to make payroll for me can give me free advice all they want. But the fact is we have now gotten it down to where it's only 13% of our stand-alone revenue. That is about where I think we could make a decision without major impact. . . . A year ago, it was half my revenue. I'd have gone broke.

Netscape CEO James Barksdale

Microsoft's public relations tour:
I think that's typical Microsoft. And I'm sure Mr. Balmer will now present a much kinder and gentler face and apologize profusely for [saying] "to heck with Janet Reno," and I'm sure he'll apologize for their being perceived as big bullies, and I'm sure he'll apologize for their anticompetitive and illegal marketing practices and seem like they're very mild and not restrictive at all, and . . . the press will fall all over 'em and say, "Well, they must be a kinder, sweeter Microsoft."

Netscape's stock:
If you look at most of the technology stocks, the median decline in the last year has been 64% for all of them. And that's about where Netscape is.

Pundits:
I will tell you this: Nobody saw Netscape coming. I'm amazed at how many people now think they know where we're going.

Tandem offers new availability tack

By Jaikumar Vijayan

THERE IS fault tolerance, and then there is high availability.

The former guarantees near-continuous uptime and availability of application and data. The latter tries to make systems available as much as possible and ensures that little data is lost when systems fail.

The first approach costs a lot, the second much less so.

Tandem Computer Corp. this week will announce Unix technology that aims to give users something in between.

At a basic level, Tandem's new NonStop Clusters and Single System Image technologies let users tie multiple servers or clusters of processors into a configuration in which another will take over immediately if one server or set of processors fails.

Integrated software and middleware let users hook up or remove systems from the configuration on the fly. It also lets users manage multiple systems in a configuration as if they were one system. That means users can take down parts of the system for maintenance or upgrades without having to shut it down entirely.

Initially, Tandem will bundle its NonStop Clusters technology for Unix on Compaq Computer Corp.'s Intel boxes. So the company thinks it may be able to sell its technology for less than competing products from vendors such as Sun Microsystems, Inc., Digital Equipment Corp. and Hewlett-Packard Co.

An Integrity XC two-node cluster configuration that features two Compaq ProLiant servers running the NonStop Cluster software will cost less than $50,000.

The availability that Tandem is promising is crucial for markets such as the telecommunications industry, where Tandem initially is marketing its newest cluster technology.

CAN'T BE ON HOLD

"Our customers are telecommunication firms. In order for us to sell a piece of equipment, we have to prove to them that it will not go down," said Rich Miner, a vice president at Wildfire Communications, Inc. in Lexington, Mass.

The company manufactures a range of electronic-assistant technologies that run on Tandem's hardware. Telephone companies often use these technologies to offer services such as voice mail.

"If a service provider experiences an outage that is noticeable by the customer, that is unacceptable," said Bill Wolfe, vice president of business development at Isocor, a Santa Monica, Calif.-based provider of messaging and directory infrastructure services to telephone companies. "With nonstop clusters, we have the ability to deliver what they want" at reasonable costs, he said. □

pros & cons

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WHAT'S GIGABIT TOKEN RING?

Definition: Gigabit Token Ring is a planned high-speed networking option designed to give users an alternative to migrating from Token Ring LANs to Ethernet-based technologies.

Why: Many Token Ring users already made the switch to 100M bit/sec. Fast Ethernet because the highest possible standard speed supported by Token Ring is 16M bit/sec. Those who haven't made the switch need more bandwidth for backbone networking.

When: Xylan promised to ship products by the end of last year, but will be six months late. Industry experts expect demand for Gigabit Token Ring to begin next year.

First Gigabit Token Ring product stalled

▸ *Users not fazed; they want industry standard*

By Bob Wallace

THE FIRST VENDOR developing a high-speed networking option called Gigabit Token Ring said last week that the products will be delayed six months.

Xylan Corp. announced plans for Gigabit Token Ring products last June and missed its shipment target of year's end. The Calabasas, Calif., switch maker now plans to deliver the goods by the end of June.

Gigabit Token Ring was designed to offer Token Ring LAN users an alternative to migrating to Ethernet-based technologies. Feeling dead-ended by Token Ring's 16M bit/sec. speed limit, most users looking for more bandwidth have moved to 100M bit/sec. Fast Ethernet for their backbone networking.

Shipments have been delayed because Xylan diverted resources to a second Token Ring project: the development of a low-cost, high-density Token Ring switching module, said Xylan co-founder Doug Hill.

He stressed that the delay wasn't caused by technical problems.

"The two projects were [merged] because they share the same resources and require the same software," Hill said.

Gigabit Token Ring product development has been coupled with an effort to develop a chip for the planned Token Ring switching module, Hill said.

News of the delay didn't faze two Token Ring users.

"This isn't surprising and doesn't have an impact on us since we have no plans to migrate to higher-speed Token Ring [technologies]," said David Eisenlohr, vice president of data center operations at Pacific Exchange, Inc., a San Francisco stock exchange.

Current Token Ring technology provides sufficient bandwidth for the exchange's 700-node network, which supports three trading floors, he said.

One Token Ring expert said there is little demand for proprietary high-speed Token Ring products such as those promised by Xylan.

"Customers have made it very clear that they want industry-standard, high-speed Token Ring products," said Kevin Tolly, president of The Tolly Group, a Manasquan, N.J., consulting and research firm. "We expect there will be demand for industry-standard Gigabit Token Ring in 1999."

Tony Villani agreed with Tolly. "I'd be very hesitant to venture into a proprietary technology [scheme]," said Villani, network manager at Hingham Mutual Fire Insurance Co. in Hingham, Mass., a longtime Token Ring shop. "I'd rather go with the industry standard that [other] vendors are working on now."

Responding to user pressure for industry-standard Token Ring products that work at speeds higher than today's 16M bit/sec., top networking vendors in September formed an industry group called the High-Speed Token Ring Alliance.

The group quickly agreed on a specification for Token Ring products that run at 100M bit/sec. Members pledged to eventually develop Gigabit Token Ring products.

"The work of the alliance makes proprietary [approaches] less and less attractive to users," Tolly said. □

New rules cut costs

CONTINUED FROM PAGE 1

would have to capitalize third-party software purchases as assets and depreciate those costs over time (see chart below). The rules are expected to go into effect by the end of March.

The rules will be good for companies that historically would have expensed a $2 million human resources software project, for example, up front and taken a direct hit against earnings. Under the new regulations, a company could amortize the costs of the human resources project at, for example, $400,000 per year for five years and soften the blow against earnings and cash flow.

Previously, there were no regulations. Companies could follow several paths, including incurring all software expenses at the point of purchase or development, thus taking care of the costs all at once.

Companies that don't follow the new regulations could find the Securities and Exchange Commission investigating their accounting practices.

Under the AICPA regulations, only specific costs, such as research and development and data conversion costs, would have to be expensed.

BETTER EARNINGS

Critics and advocates of the accounting regulations said the action would help companies by preventing them from having to take a big onetime hit against earnings for major software projects, such as an SAP AG R/3 implementation, which could cost tens of millions of dollars. Depreciation of those costs over a five- to seven-year period, for example, "would likely lead to a positive net effect on earnings," said Dan Noll, technical manager for the accounting standards group at the AICPA in New York. The organization boasts 330,000 U.S. members.

Still, there are several "gotchas" with the new rules. Companies that have historically expensed software costs "will have to put procedures and systems in place to track all of these assets now," said Lynn Turner, chief financial officer at Symbios, Inc., a Fort Collins, Colo.-based semiconductor and storage product maker. That could cost companies without asset management practices thousands of dollars in start-up costs and monitoring software.

SPREADING TOO THIN

And companies that try to spread out too many software projects "could find themselves financially paralyzed" if they allow too many software projects to be lumped together and depreciate all at once, said Susan A. Frank, vice president of information technology at Medtronic, Inc., a Shoreview, Minn.-based manufacturer of pacemakers and other implantable devices. Medtronic began revamping its accounting practices eight months ago in anticipation of the regulations.

Frank wouldn't say how much it cost the company to make those changes.

The new AICPA regulations would have no effect on a 1996 ruling by the Financial Accounting Standards Board (FASB) (*www.fasb.org*), a group in Norwalk, Conn., that sets the accounting practices most companies use.

That ruling requires companies to expense year 2000 costs in the year in which they occur hasn't occurred yet instead of spreading them out over a period of several years [CW, Sept. 16, 1996].

Last month, the FASB gave AICPA its "blessings" to move forward with the new regulations, said an FASB spokeswoman. The AICPA regulations can be enforced, so independent auditors will have to adhere to the rules as part of FASB's Generally Accepted Accounting Principles.

Companies that don't follow the new regulations could find the Securities and Exchange Commission investigating their accounting practices, said Frank Scheuerell, an FASB project manager. "It could get messy," he warned.

Theoretically, companies that haven't started their year 2000 projects could replace their older, date-sensitive software with newer software and depreciate the costs of the replacement software under the new AICPA rules.

The problem is, "there just isn't enough time" for companies to try and match hundreds of function points with new software, said Jim Jones, managing director of the Information Management Forum, an IS executives user group in Atlanta comprising 100 Fortune 1000 companies. □

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► **A continuing software management program:**
www.microsoft.com/piracy/licguide/Contents/contents.htm#continuingProgram

► **The BSA's Guide to Software Management:**
www.bsa.org/info/guideswmgt/page1_02.html

OUT WITH THE OLD ...

Companies will follow new rules when accounting for software costs

Before No published standards. In some cases, companies expensed software costs as they occurred. In other cases, they would capitalize software costs as assets. A third technique would be to expense internally developed, internal-use software and capitalize software purchased from third-party vendors.

Soon (by the end of Q1 1998) Companies must capitalize third-party software costs as assets and depreciate those costs over time. Specific costs, such as research and development and data conversion costs, must be expensed as incurred.

Source: American Institute of Certified Public Accountants, New York

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Web rating system criticized

▸ *'net advocates balk at content selection proposal*

By Sharon Machlis

IT MAY SOUND innocent enough: Protect children from Web smut through voluntary screening and rating systems.

For example, the World Wide Web Consortium (*www.w3.org*) recently announced a recommendation, called PICSRules, which is aimed at making it easy for parents to add third-party Web rating services to their own browsers. The idea is to let users connect to a rating service Web site and use its standards with a one-click file download.

HOW PICSRULES WORKS

- Rating agency/site uses a programming language to accept or reject sites based on URLs, domains or PICS labels
- The agency's set of PICSRules could be downloaded to a compliant browser, allowing individuals to use that agency's rules instead of configuring their own rules from scratch

But such proposals are running into controversy in the wake of last year's successful court challenge to the Communications Decency Act, which would have barred the posting of any sexually explicit material that could be accessed by minors online.

The consortium is charged with overseeing Internet technical standards. It developed the Platform for Internet Content Selection (PICS) to help people decide what they wish to view while Web surfing. The consortium will recommend PICSRules to vendors.

But PICSRules was harshly criticized by a coalition of civil rights groups called the Global Internet Liberty Campaign (*www.gilc.org*), which urged the consortium to ditch the plan.

Opponents include organizations such as the American Civil Liberties Union (*www.aclu.org*), Computer Professionals for Social Responsibility (*www.cpsr.org/home.html*) and the Electronic Privacy Information Center (*www.epic.org*).

"This is setting up an infrastructure [to make] it a lot easier to censor," complained Dave Banisar, staff counsel to the Electronic Privacy Information Center.

Several media organizations on the Web also oppose rating systems. "It's a matter of principle to us: News content is not ratable," said Dan Woods, director of editorial technology at Time, Inc. New Media in New York. "There's a very thin line between rating and censoring."

But Paul Resnick, an associate professor at the University of Michigan and chairman of the Web consortium's PICS group, said the purpose of PICSRules is to give individuals the power to decide what information they want to view.

The standard would make it easy to use anyone's rating system, even a local Parent/Teacher Association.

"Governments don't need it to be easy to do," Resnick argued. "They could do it anyway." □

RELATED LINKS

For these and other related links, point your browser at:
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Platform for Internet Content Selection (PICS):
www.w3.org/PICS/

Filtering FAQ:
http://quark.cpsr.org/harryh/faq.html

What others are saying about PICS:
www.w3.org/PICS/#links

CA fires off fix for 2000

By Nancy Weil

COMPUTER ASSOCIATES International, Inc. has announced a software fix for the year 2000 problem that one client called "the closest thing we've seen to a silver bullet," although an analyst found it to be a less dramatic solution.

CA-Fix/2000 is available now on a metered pricing scale based on the number of lines of code a company needs to change. The general list price is 30 cents per line of code, but the price decreases with volume.

"It fixes the code where it lives — on the mainframe," said Mark Stabler, a CA vice president. "It is extremely fast and accurate."

Chief information officers from three companies that have tested a beta release of the software vouched for CA-Fix/2000. All three said it worked reliably to change computer code written for a two-digit date field.

Richard Kish, CIO at bookstore chain Barnes & Noble, Inc. in New York, said CA-Fix/2000 required just 30 days of actual running time to go through 3.5 million lines of code.

Stabler said competing products have a serious flaw. "Many tools on today's market overfix the problem," he said. "They go in and fix too much code." CA-Fix/2000 doesn't do that, he said. The software also provides an audit trail so information systems departments can see what was changed and what wasn't.

Despite the enthusiasm of the early testers of CA-Fix/2000, the software won't dramatically speed the work required to correct computer code, said Lou Marcoccio, director of year 2000 research at Gartner Group, Inc. in Westboro, Mass.

"It should help efficiency in getting work done, and it should add to productivity. But it is no silver bullet, and it is not much different from other solutions in the marketplace," Marcoccio said. Dealing with year 2000 issues still will require a lot of time to go through lines of code and implement changes, he said.

Vendors come out with year 2000 products on nearly a daily basis, but he said he has yet to see any tool that is markedly different from the others. □

Weil is a reporter for the IDG News Service in Boston.

Lotus to improve Notes/Web integration

CONTINUED FROM PAGE 1

next Domino release, due at midyear, to help automate the creation of knowledge management applications.

Those are a kind of specialized groupware that helps companies harness intellectual assets to make better business decisions.

Lotus in Cambridge, Mass., declined to comment on the announcements.

But Tom Austin, an analyst at Gartner Group, Inc. in Stamford, Conn., said, "Most Notes devotees are anxious to see the software evolve [into a more] Web-based product."

To date, users who access Domino from Web browsers lose out on many Notes-specific features because of limitations in Hypertext Markup Language, which is used by browsers.

At the Lotusphere conference, Lotus will announce Notes 5.0 and Domino 5.0, both of which were designed to expose the choicest features of the company's server to users of Web browsers through support for the Internet Inter-ORB Protocol (IIOP) and by exposing Domino interfaces to Java.

The client and server upgrades are expected by midyear.

In addition to making Web browsers more functional, IIOP and enhanced Java support will let Notes developers build applications once and run them in browsers or Notes clients with virtually no changes.

Today, companies must write two separate applications or accept the stripped-down functionality of the browser client.

The tighter Web integration promised for Release 5.0 is key to keeping Notes from becoming a legacy application, said Bill Wood, associate director of team technology at SmithKline Beecham Corp. in King of Prussia, Pa. "Most of the strides that Lotus has made to date in terms of the Web have led them to this dual [browser and Notes client] world," he said.

The result is a somewhat "clumsy Web development environment," according to Wood, who wants to deploy a mixture of Web browsers and Notes clients to end users.

On the client side, Notes 5.0 will offer an integrated browser and a user interface that bears little resemblance to the current Notes client.

Bill Gaughan, information systems manager at Bayer Corp. in Boston, said the new interface could make it easier to train "more casual Notes users" because it will look like a familiar Web browser.

TAKE NOTE

User concerns

- Notes applications aren't completely portable to Web environment
- Overall cost of ownership
- Desire for more rapid application development

Lotus' plans

- Support for Internet Inter-ORB Protocol and Java
- Further support for Internet protocols and more scalable version for AS/400
- Ability to use standard Web tools

"Most Notes devotees are anxious to see the software evolve [into a more] Web-based product."
— Tom Austin, Gartner Group

Lotus is also looking to distinguish Notes from Microsoft Corp. Exchange by offering a more advanced collaboration environment out of the box.

To that end, the company is adding a series of new collaboration features to Domino, including tools for building user profiles that could make it easier for workers to share knowledge.

New search capabilities for locating information in Domino databases also are on tap for Domino 5.0, sources said.

In addition to improved Web integration, another major theme at the show will be reducing costs by running Domino on highly scalable systems, such as the IBM S/390 mainframe. Also on the show docket is a version of Notes for the AS/400, which will be available by the end of this month. □

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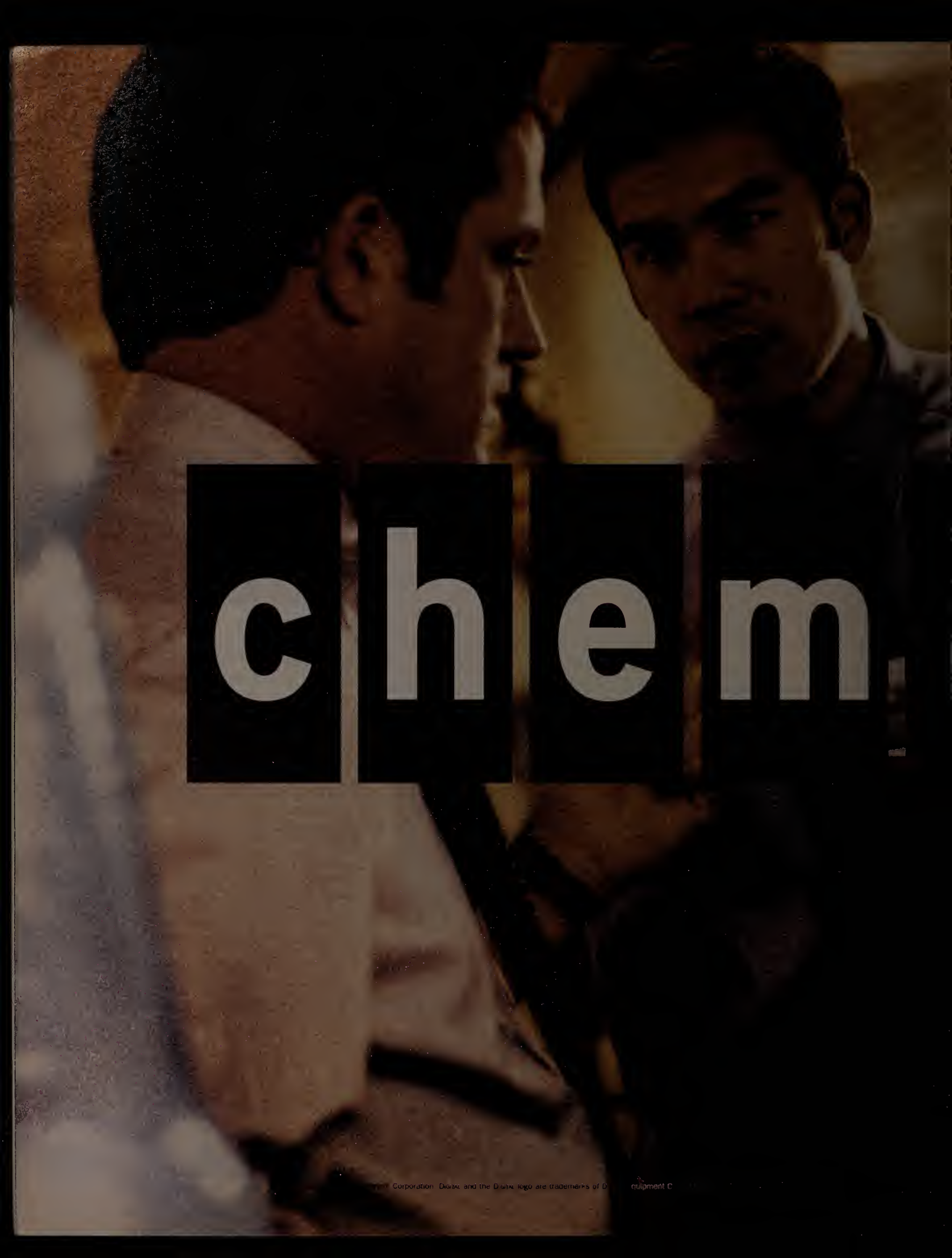

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Managed PCs offer lower support costs

▸ *Systems compete with less-flexible network computers*

By April Jacobs

BECAUSE COST OF OWNERSHIP is one of the most pressing issues that IT departments face, observers say 1998 may be the year of the managed PC.

Managed PCs are standard PCs that have extra features such as intelligent management built in to the hardware that works with management software.

Features include remote troubleshooting and locking down the system so users can't fiddle with it.

Managed PCs allegedly won't require any additional training for users or information technology staffers.

The systems have hit the scene at a time when the market is being flooded with less-flexible network PCs and computers.

Managed PCs incorporate many of the same features as the cost-busting NetPC but don't adhere to that computer's rigid requirements, which have been set by Microsoft Corp. and Intel Corp.

Those requirements dictate, among other things, that the machines have no floppy drive or legacy equipment such as Industry Standard Architecture slots.

Another differentiator is that the managed PCs aren't necessarily pinned to a server as are most network computers.

Top PC vendors that offer managed PCs include Houston-based Compaq Computer Corp.; Dell Computer Corp. in Round Rock, Texas; IBM; and Palo Alto, Calif.-based Hewlett-Packard Co.

Benefits of manageable PCs

- DMI-compliant, which allows for remote polling
- Works with back-end products such as SMS, which allows for remote software distribution
- Can take advantage of Wake-On-LAN to be remotely turned on

Wayne Hastings, assistant to the vice president of power generation at Detroit Edison Co., said his company is looking closely at managed PCs to work with Microsoft's Systems Management Server (SMS) software.

Using managed PCs would allow the utility to centrally distribute software and track licensing for its 7,000 users.

"This is a runaround, time-consuming activity," Hastings said. If the vendors standardize on Intel's Distributed Management Interface 2.0 (DMI) — a hardware management standard that is the basis for things such as remote polling, software distribution and wake-up for PCs — adoption will be easier across platforms, he said.

WHERE THE MONEY GOES

Hastings said easier license tracking tools will help cost centers determine how much they spend on licenses — and if there are users who may not need everything loaded on their desktops.

Larry Garden, manager of technical operations at Mississauga, Ontario-based Brewers Retail, Inc., said his company uses Microsoft's SMS software with new Dell manageable OptiPlex PCs, which have Intel's DMI onboard.

He said as DMI moves forward to incorporate drill-down and remote wake-up features, the company will do more to automate software distribution, tracking and polling.

John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H., said the success of the managed PC will be more assured as vendors move to standardize and further integrate the separate features that make it attractive. □

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MICRON ELECTRONICS

Thinking Out Of The Box

Merrill Lynch fights off recruiters

SOMERSET, N.J.

TUCKED AWAY in a nondescript suburban office park 60 miles from Wall Street is a platoon of programmers charged with fixing the 170 million lines of code needed to keep the world's biggest brokerage alive.

The programmers are among the 100 full-time staffers and 150 consultants who make up the year 2000 project team at Merrill Lynch & Co. Given the global reach of the New York-based brokerage, the world's markets teeter on the success of this year 2000 project as much as any other.

In spite of the pressure that comes with having to fix 1,450 applications, this group of casually dressed, mostly forty-somethings exudes a quiet confidence. They are pacing themselves, working 40- to 50-hour weeks and occasional weekends to test repaired code against production systems.

Merrill Lynch's Susan Luechinger: "I live with this constant fear that we've forgotten something"

JOHN RAE

The biggest near-term challenge Merrill Lynch faces is keeping the recruiting wolves from snatching away staff and contract programmers from any of the seven software "factories" the company has set up in New York and New Jersey to fix date-sensitive code.

Merrill Lynch offers bonuses that range from $15,000 to $45,000 for Cobol programmers who remain through May 2000. Cobolers are also guaranteed training in any area they want, such as client/server programming.

It might prove tougher for the company to hold on to contract programmers. In October 1996, the brokerage signed three-year contracts with three consulting shops, locking in the services of programmers for $500 per day each. Each vendor must supply Merrill Lynch with programmers who are trained to use automated conversion tools from Peritus Software Services, Inc. in Billerica, Mass. But there are no guarantees that the same people will remain on the project through 1999.

"I'm not concerned about losing employees — this is the place they want to be," said Susan Luechinger, a Merrill Lynch vice president who oversees its year 2000 program. The main concern is keeping the consultants, she said.

Merrill Lynch

Year 2000 project budget: $200 million

Lines of code: 170 million

People on project: 250

Luechinger said she meets regularly with consulting vendors on retention strategies. If challenged, Merrill Lynch will flex its market muscle. The company spends more than $1 billion per year on information technology and has set aside $200 million to make its systems year 2000-compliant.

Any contract programmer who tries to squeeze Merrill Lynch for more than the $500 per diem will "never work at Merrill again," said Howard Sorgen, the firm's chief information officer.

Merrill Lynch is still on schedule with a year 2000 effort that included the renovation of 35 million lines of code last quarter. Sorgen credits Luechinger, a 49-year-old who three years ago steered Merrill Lynch through T+3, another gigantic reprogramming project with an immovable deadline.

T+3 was a securities industry initiative that forced brokerages and clearinghouses to settle transactions in three days instead of the old five-day standard. Companies such as Merrill Lynch and Goldman, Sachs & Co. had to retrofit their systems.

At the time, "we joked, 'What could they possibly give us that would stress us out more than T+3?'" Luechinger said.

She's finding out.

Luechinger, who coordinates activities among Merrill Lynch facilities in North America, Europe and Asia, has three secretaries who screen 100 telephone calls per day from vendors hawking year 2000 products and services. Even with healthy progress, Luechinger can't mask the pressure she senses about a project that has two years to go.

Said Luechinger, "I feel this incredible weight hanging over my head." □

— Thomas Hoffman

Nabisco: Trailblazing

EAST HANOVER, N.J.

TWO YEARS BEFORE the turn of the century, members of the year 2000 team at Nabisco, Inc. can almost smell victory.

Not complete victory, of course. That can't come until the snack food giant enters the new century with its critical systems intact. But late last year, the team was hopeful it could solve Nabisco's year 2000 problems while improving everything from systems maintenance to software purchasing at the $8.9 billion firm.

Gesturing at a PC showing an automated code analysis tool, Richard Clamp, manager of applications development, predicted that if the team's approach works on a critical manufacturing system, "the rest of it is a piece of cake."

They learned in November that the approach worked well on their first target: a manufacturing planning system that looks 18 months into the future and thus had to be fixed and back in production by mid-1998. The team hopes to use the same techniques to fix year 2000 bugs corporatewide.

Nabisco started its year 2000 project nearly two years ago. The company estimates it will spend $22 million preparing 300 application systems and 450 operating system and utility "components" for the date change.

Nabisco

Year 2000 project budget: $22 million

Business systems: 300*

Project staff: 50 to 60

*Plus 450 major systems components, including databases

The team's spark plug and leader is Tony Del Duca, senior director of information services, a stocky, dark-haired intense bundle of energy. At 49, Del Duca looks and sounds like the physical education teacher he once was, barking commands and questions and restlessly checking to make sure his team is motivated and working smoothly. He knows the team well because he has worked with some of its members for as long as 12 years. They have followed him — "like lemmings!" he joked — from job to job. Nabisco Chief Information Officer Joseph Farrelly brought in Del Duca to improve project management. Del Duca then recruited others that he knew "could get the job done."

John Halper, a thin, soft-spoken 38-year-old, worked with Del Duca at Automatic Data Processing, Inc. (ADP) before he joined Nabisco last year to improve project management within IS. Now he also reports on companywide year 2000 progress to Farrelly. At ADP, Tim Bilali tested what he calls "the largest payroll application in the world." Now he does the same for Nabisco's manufacturing applications.

So far, much of the team's effort has been groundwork. Bilali, for example, has been developing common standards for different Nabisco plants to measure year 2000 compliance. He has drawn up a scheme to create and perform system tests and to manage test plans and results.

Such coordination and planning are critical with more than 27,000 program elements to find, fix, test and reintegrate in Del Duca's area alone. Besides testing, the team hopes its year 2000 work will leave behind a central project management system, stronger source code management practices and a coordinated way to move code from development to production. Software tools help.

Nabisco's Tony Del Duca handpicked his year 2000 team to make sure it could get the job done

JOHN RAE

McCabe Visual 2000 from McCabe & Associates, Inc., in Columbia, Md., allows the team to analyze code and track subtle "logic paths" that demonstrate how dates are used. It is the output of that analysis, which has the appearance of a flattened organizational chart, that the team is showing off. Del Duca said the tool saves the team time by helping the members concentrate on complex code changes rather than mundane fixes.

And the year 2000 project seems less like drudge work and more a part of a mission to help Nabisco develop and maintain software faster than before at less cost. "It's like we're crawling right now," Clamp said. "But we're blazing a trail for everyone else." □

— Robert L. Scheier and Gary H. Anthes

Utility team seeks support

CLEMENTON, N.J.

HOLED UP IN THREE ROOMS above a local payment office, a team of IS veterans at Atlantic Energy, Inc. has just about finished renovating the electric utility's billing and customer information systems for 2000. The seven programmers have analyzed most other applications developed in-house for date-sensitive code.

But Chris Arena, the year 2000 project manager, is worried.

The scope of his team's $3.25 million project covers only those systems, such as billing, that were written and maintained by the $1 billion utility's IS group. Other systems, including those used for power generation and distribution, are the responsibility of user departments, "and nobody's working on year 2000 in those departmental areas," Arena said.

JAMES WASSERMAN

Members of the year 2000 team at Atlantic Energy

Distracted by an ongoing merger with Delmarva Power & Light Co. and a major SAP AG R/3 implementation, top executives have yet to make year 2000 readiness an official goal.

That hasn't stopped team members from taking on additional roles as enterprise fact-finders and year 2000 crusaders. For example, they developed a year 2000 risk assessment survey, which was hand-delivered by team members to 80 business department managers. The managers were asked to define and rank their high- and medium-risk systems. A summary report will be presented to senior management.

CLUBHOUSE

The work occurs at an office here, about 50 miles from Atlantic Energy headquarters in Egg Harbor Township, N.J.

With a Stairmaster machine in the corner and Tupperware containers of Cheerios and pretzels, the scene looks more like a clubhouse than ground zero for a mission-critical systems project.

Four of the team members, all independent consultants hand-picked by Arena, interact like longtime friends.

Arena, who had worked with each of the four at different companies, chose them precisely for that reason. "There was a rapport there," he said.

Atlantic Energy

Year 2000 project budget: $3.25 million

Lines of code: 25 million

People on project: 7

Listening to the banter between Fred Knight, 50, and Frank Cangemi, the team's 61-year-old Assembler guru, that rapport is obvious. The two go back almost 20 years to when they worked together at a Philadelphia bank.

Since November 1996, Knight, Cangemi and the rest of the team have analyzed about 6,000 Atlantic Energy programs written in Assembler, Cobol, Adabas and other mainframe languages. They also have analyzed 3,500 — about 80% — of Delmarva's MVS programs.

"At times, this is a tedious thing," Cangemi said of analyzing line after line of code. Knowing Knight is an advantage because "we don't get on each other's nerves," he joked.

Knight said a good mix of people can make or break a year 2000 effort. "It's like having 40 guys in a big row boat, and if you're not all rowing on the same drum, it just goes in circles," he said.

The SAP project under way at a Delmarva site in Christiana, Del., has occupied the limelight, so Arena said he has sought to build goodwill with that effort by sharing his team's expertise about the utility's operations. The SAP software eventually will handle financial data at the combined utility. Arena also attends department meetings to identify potential year 2000 pitfalls outside of IS.

"But the next step has to be to make [year 2000] a corporate goal," Arena said. "There's an overriding concern that we generate and we distribute power. If that doesn't happen, it doesn't matter whether we can bill people or not." □ — *Julia King*

Prophet sees megacrisis

TORONTO

JOE BOIVIN quietly crossed his hands, leaned forward on his desk and dropped his voice to a whisper. "I know we don't have much time," he said, looking at his watch. "Do you mind if I do a brain dump?"

Time was short that cold October evening because his visitor had to run to the Toronto airport. But Boivin had other, more threatening deadlines on his mind.

The year 2000 problem is no less than "a global economy threat," Boivin said, and it is a threat that has been barely considered by most of the world's corporations.

It matters little to him that the Canadian Imperial Bank of Commerce (CIBC), in whose offices he was sitting and which was paying his salary, is one of the few organizations that has battled its year 2000 problem to tameable size. The success of Canada's fifth-largest bank will mean little if the global economy breaks down because of unsolved year 2000 bugs.

Canadian Imperial Bank of Commerce

Year 2000 project budget: $150 million

Lines of code: 75 million to 100 million

People on project: Between 250 and 300

It also matters little to this craggy, 54-year-old grandfather that he played a key role in CIBC's success. "He's had a tremendous influence on me, helping me see we don't have to eat this elephant in one big meal," said Russell McLean, director of testing services for CIBC's personal and commercial operations.

Simply put, Boivin proposed "fooling" individual applications into thinking they are using four-digit rather than two-digit dates through a well-known process called windowing. The technique freezes the interfaces between applications so they continue to swap years in the two-digit format rather than a new, four-digit one.

That way, developers in CIBC's credit-card group can fix code, while developers in the mortgage-processing group do the same.

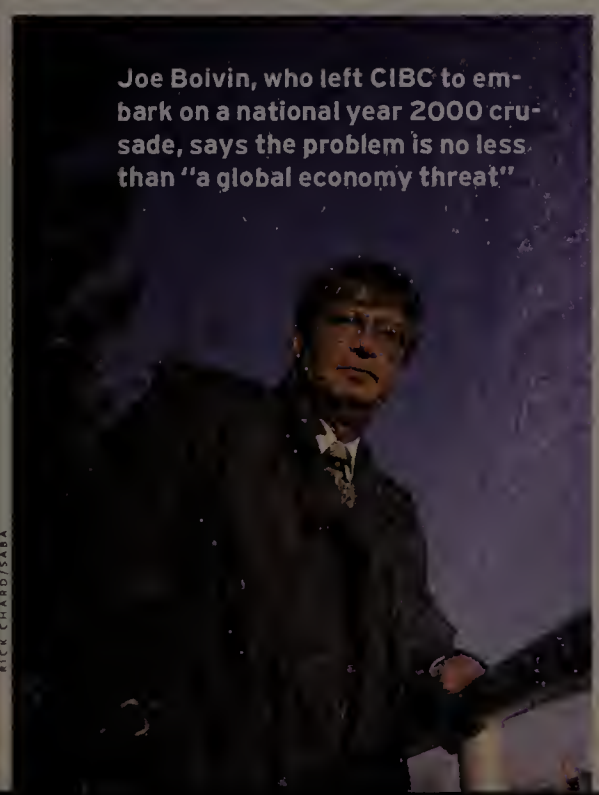
On a national and even global scale, Boivin says, this could sweep away much of the confusion and delay that could endanger society.

Because the bank started in 1995 and adopted the divide-and-conquer approach, CIBC already is testing some of its 75 million to 100 million lines of code.

It is also tackling less obvious year 2000 problems in its network infrastructure and in its customer base, well ahead of its competitors.

Recognizing that CIBC's success will be meaningless if the economy fails, bank executives spend untold days on the road giving away the lessons CIBC has learned and regularly host other, less well-prepared firms.

Boivin has suggested doing even more. Under his concept, CIBC would freeze changes in its technology infrastructure to let others make year 2000-related changes, while still going forward with some changes to business systems that give CIBC a competitive edge.



RICK CHARD/SABA

Joe Boivin, who left CIBC to embark on a national year 2000 crusade, says the problem is no less than "a global economy threat"

John Burns, the bank's vice president of projects, last November warned that Boivin might not be around to fight that battle. "If Joe's passion becomes too strong, he may not be able to live with" the bank's need to make a profit as well as do the right thing on the year 2000, he said.

Indeed, the siren call for a national year 2000 crusade proved too strong. Boivin left the bank last month to create the National Millennium Foundation in Ottawa, which he calls the first national program office for year 2000 work.

"Any large company successful in dealing with the year 2000 problem knows that it really needs to put a program office in place. The same is true at the country level," Boivin said.

"This is my role. The reward is a future for my children and grandchildren," he explained. □ — *Robert L. Scheier with Gary H. Anthes*

Union Pacific on fast track

OMAHA

"JANUARY 1, 2000 — just like any other day."

Red and yellow stickers bearing that slogan appear on bulletin boards, cubicle walls and even in the restrooms at Union Pacific Corp., which entered 1998 in an enviable position.

The $9 billion railroad, based here, is ahead of schedule and $3 million under budget on its $46 million year 2000 project. More than half of the company's mainframe-based programs are fixed.

Another 40% of some 300,000 user-created applications, developed over two decades in the Focus language from New York-based Information Builders, Inc., have been fixed or retired. That includes testing, which Union Pacific does on an ongoing basis rather than at the end of the project.

JOHN NOLLENDORFS

Union Pacific's Jim Fox says the railroad will be ready for 2000

So information systems director Jim Fox and his project managers beam when they talk about the company's second-largest IS project ever. (The largest was a two-year, $60 million effort to integrate Union Pacific's systems with Southern Pacific Rail Corp., acquired last summer.)

Fox said Union Pacific studied outsourcing its year 2000 work but decided to rely on experienced in-house talent who understand the railroad business. "We have more data on this project than any other IS project. Because of that, I feel comfortable. This will be done by the end of 1998," said Fox, a 25-year Union Pacific veteran.

It is a far cry from the situation in 1994, when Union Pacific executives didn't want to hear about, much less fund, what was then estimated to be a $20 million effort.

To turn them around, Fox and his team painted excruciatingly detailed pictures of what would happen if management brushed off the date issue. Scheduling systems would fail, stranding thousands of railcars and crew. Payroll systems would crash. Union laborers would walk.

They enlisted Chief Information Officer Joyce Wrenn to press the issue at executive meetings. Corporate auditors, invited to assess progress in defusing the year 2000 time bomb, issued what Fox described as "a not so complimentary report." In 1996, full funding was approved.

Then things really took off. Team leader Jean Kirkpatrick, who had been working alone, hired 13 contractors to analyze, fix and test Union Pacific's user-developed Focus-based systems.

Union Pacific

Year 2000 project budget: $46 million

Lines of code: 72 million

People on project: 104

A horsewoman and former barrel racer, she corralled experts from Indiana, Los Angeles and Canada. And because no tools to analyze Focus code existed, she developed her own.

"I was really skeptical that she could do it, and I almost told her not to," Fox recalled. He credits Kirkpatrick's ingenuity with putting the Focus project ahead of schedule. Outsiders have even called looking to buy the tools.

Union Pacific hired additional Cobol and assembler programmers, including five retirees with more than 20 years of experience maintaining the railroad's mainframes. By the end of 1997, that team had analyzed, renovated and tested 50% of Union Pacific's 15,000 Cobol programs and 7,000 assembler programs. The team expects to finish the rest this year, leaving a 12-month cushion to work out lingering problems.

The big crap shoot involves software and systems furnished to Union Pacific by 16,000 suppliers, software that "is still not known to us," said Don Swanson a 28-year Union Pacific veteran who heads this effort. Those systems include electronic gates at railroad crossings and computerized event recorders, or "black boxes," on locomotives.

Union Pacific has asked suppliers to certify that their equipment is year 2000-compliant. The same requests will go to cities where the railroad has major terminals, financial institutions and utilities, Swanson said.

Union Pacific's strategy couldn't be more plain. "If our vendors don't comply, we're going to find different vendors," he said. □ —*Julia King*

Year 2000 team raids AS/400

A FRIDAY NIGHT in late fall, the IS staff all gone home, the office empty. Time for C. R. Bard, Inc.'s year 2000 team to move.

Without warning to the medical supplier's various information systems groups, the project team snatched up every bit of source code from the data center's AS/400 and locked a copy of it away for critical date-change fixes.

"They all screamed their heads off about it Monday morning," said Paul Maszczak, corporate director of data operations and the man responsible for the $1.3 billion manufacturer's year 2000 project. Bard has 9,500 employees in 37 countries who make and market health care products for the cardiovascular, urological and surgical fields.

That AS/400 raid was the rowdiest scuffle in Bard's year 2000 work so far, bearing witness to Maszczak's belief that this unpopular project is as much a political and cultural challenge as it is a technical one.

C. R. Bard

Year 2000 project budget: $11 million

Lines of code: 8 million

People on project: 10

But within a few weeks, Bard's divisions settled down to the new reality. IS staff must justify code changes, Maszczak said, adding, "There's a chargeback cost to every change. That took about 95% of the requests away."

In the eight months since he launched the team, Maszczak hasn't wasted time in bureaucratic face-to-face meetings.

Instead, as an outsourced operation, the 10 people handling the conversion efforts at the Murray Hill, N.J.-based company have run a far-flung, $11 million project. With people located in six cities communicating via electronic mail, telephone and voice mail, it has been smooth so far, Maszczak said.

One member of the team is technical project manager Dan Murphy, a Bard IS veteran who now runs a consulting firm. Murphy said he and Maszczak together have about 50 years of experience at Bard. "It's funny to see my name and Paul's name on [old] code that still runs here," he said.

HANK DE LESPINASSE

C. R. Bard's Paul Maszczak says 2000 is a cultural challenge

Bard's year 2000 timetable calls for conversion of some 8 million lines of AS/400 and IBM mainframe code to be finished by April, leaving the rest of 1998 to implement the changes. Testing of all major systems is scheduled to end by the first quarter of 1999, with the systems rolling into production one by one as 2000 approaches.

Outsourcing some year 2000 work may be common practice. But for Bard, the entire team was handpicked from a trusted cadre of people whose work Maszczak respects. The only Bard employees involved in the project are the network and technical services managers.

Outsourcing was also ideal for employee retention. Maszczak was determined to shield the rest of the IS organization — 130 technologists globally, with about half at corporate headquarters — from dealing with the tedium of year 2000 conversion work. "Nobody wants this. It's the project that doesn't exist," he said wryly.

And yet those who do get involved "will know so much more about our internal systems and business interactions," Maszczak said.

The year 2000 work also has stepped up contacts with 359 companies linked to Bard through electronic data interchange (EDI). "We're talking to EDI business partners directly now who'd never spoken with IS before," he said. □

— *Maryfran Johnson*

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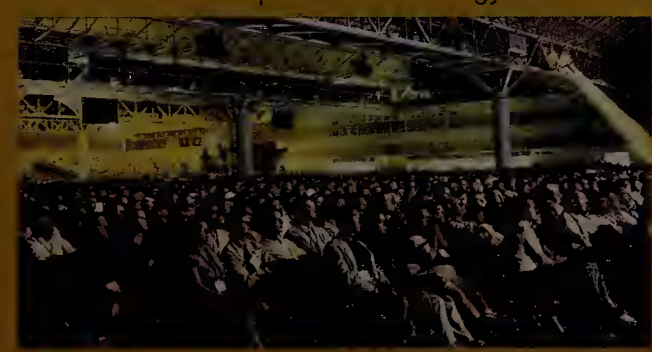

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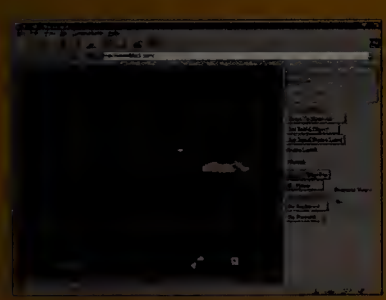

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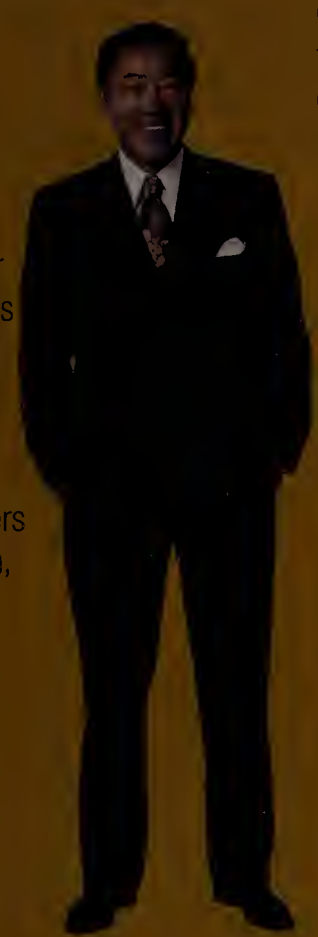

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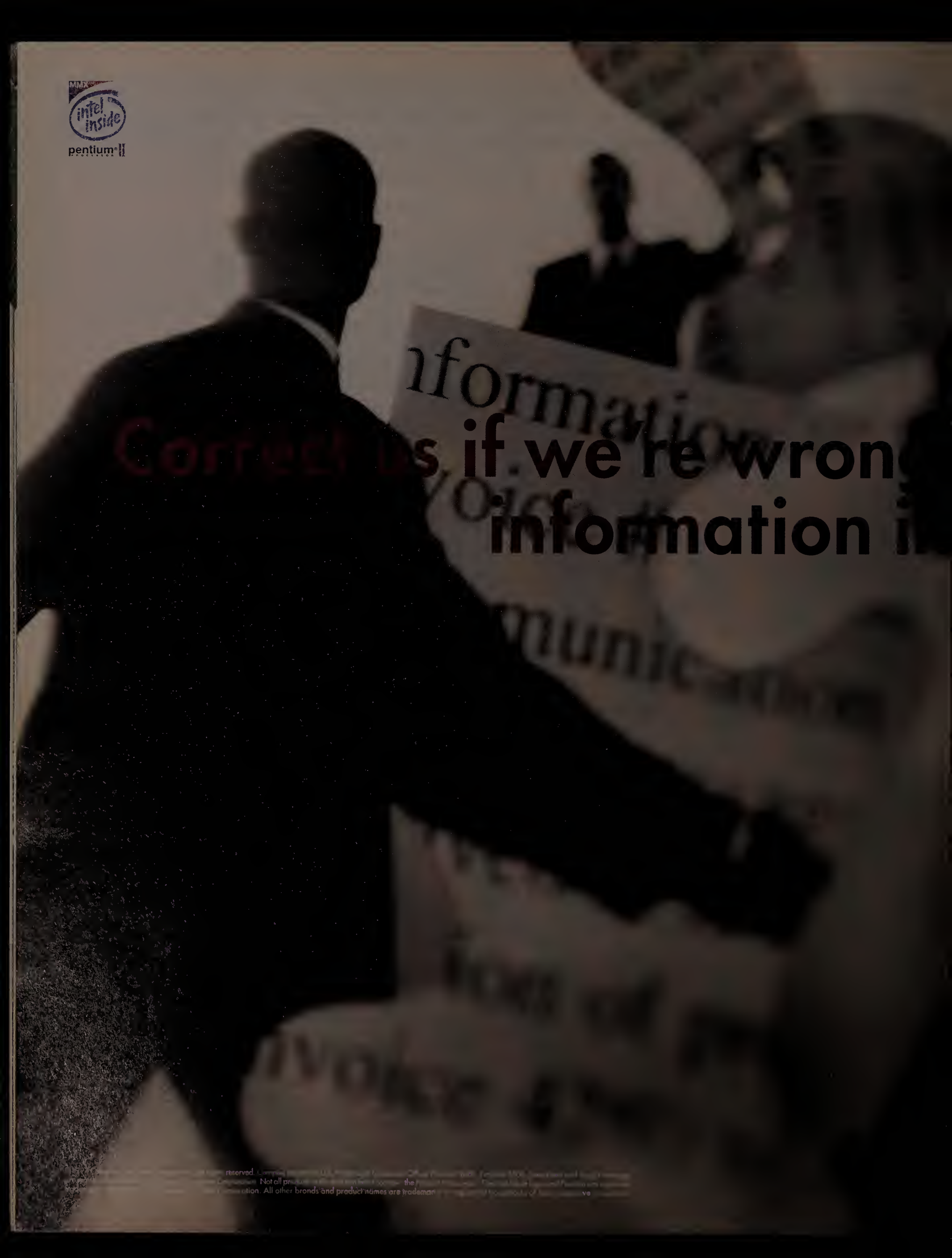
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COMPAQ

Desktop analysis tools tied to Web

▸ *Move will push decision support to more users*

By Craig Stedman

THE TOP TWO vendors of desktop decision-support tools are finally starting to get their Web acts together.

And that is a welcome sign for information systems managers who want to use the World Wide Web to spread business analysis capabilities to more users, both inside their companies and at key customers and suppliers.

Paris-based Business Objects SA in late December shipped server-based software that lets users read reports and query data warehouses from their Web browsers.

Meanwhile, rival Cognos, Inc. this month plans to tie a Web-based query tool it bought last summer to the informational meta data catalog used by its Impromptu desktop software. That will give browser users the same data navigation capabilities that the Windows product offers, Cognos officials said.

By March, Ottawa-based Cognos also plans to update a Web-based version of its high-end PowerPlay analysis software that shipped last spring. The upgrade will add support for Unix servers and for building Java-based analysis applications.

The Web products still lack some of the complex analysis features of their desktop counterparts, and several users said that gap will keep them from switching over completely.

"There's definitely a lot more functionality on the [desktop] side right now," said Don Stoller, director of decision services at Owens & Minor, Inc. in Glen Allen, Va. Internally, Stoller expects to give Business Objects' WebIntelligence tool only to casual users such as its sales force.

But WebIntelligence looks to be just what the doctor ordered for opening up Owens & Minor's data warehouse to customers who buy medical and surgical supplies from the company, Stoller said.

"The beauty of it is there's no administration on the client end," he said. "It's just a matter of giving people a URL address, and they're in." Owens & Minor wants to give 200 external customers access to its data warehouse this year, he added.

HARD-CORE COMPUTING

The Naval Center for Cost Analysis in Arlington, Va., is also beta-testing WebIntelligence. Users who do "hard-core analysis" of U.S. Navy operating costs will have to stick with Business Objects' namesake desktop software, said Cmdr. Walter Bednarski, decision-support program manager at the center.

But the Web-based software should make it easier to hook up and support remote users and Navy contractors that qualify for access to the data, he said.

"It's not too hard for us to service people in this area," Bednarski said. "But I don't have a large travel budget, and when I [installed the desktop software] at other sites, I had to make it work the first time or I was just out of luck."

Cognos and Business Objects have had to "rearchitect their products almost from scratch" to support the Web, said Wayne Eckerson, an analyst at Patricia Seybold Group in Boston.

WebIntelligence by itself costs $595 per user, the same price that Business Objects charges for its desktop query software. Cognos didn't disclose pricing on its upcoming Impromptu Web Query tool. □

WHAT YOU'RE IN FOR

Web-based analysis tools provide these benefits:

- Less need to install and support software at each PC
- Fewer end-user training requirements because of ease of use
- Data that can be opened up to customers more easily

But they also have some drawbacks:

- Full analysis capabilities not included in many products
- Close ties to desktop analysis tools still to come
- Some Web-based tools aren't available yet on Unix servers

Source: Patricia Seybold Group, Boston

Web enablers

Desktop data analysis vendors aren't the only ones rushing to catch up with the Web express. Makers of higher-end analysis tools also are building more functional browser clients.

MicroStrategy, Inc. is the latest example.

The Vienna, Va., company last week released an upgrade to its browser-based DSS Web software with report-building and analysis features previously available only in its Windows client.

Both front-end products work with MicroStrategy's DSS Server online analytical processing software.

Premier, Inc., which maintains a series of medical databases, this quarter plans to offer DSS Web 5.0 to hospitals that want to analyze the Medicare and public-domain patient records it collects.

An earlier DSS Web release had "just a fraction" of the analysis features needed by end users, said Tom Palmer, director of application development at Premier's decision-support services unit in Charlotte, N.C. But Version 5.0 is much more sophisticated, he added.

Premier's internal team of report developers will stick with MicroStrategy's Windows-based DSS Agent client, which still has some advanced capabilities that aren't available in the Web product. But Palmer said DSS Web should be good enough for most external users and will be much easier to support and install.

Pricing for DSS Web starts at $17,500 for five concurrent users. DSS Server costs $37,500 and up.

— Craig Stedman

GlobalCenter service keeps online traffic moving

▸ *Load-balancing software lets clients update Web sites simultaneously, eliminates delays*

By Matt Hamblen

JAMES BOND was never able to take this many hits and keep on going.

When the latest 007 action flick, *Tomorrow Never Dies*, was released before Christmas, Metro-Goldwyn-Mayer, Inc. (MGM) in Los Angeles was ready with a promotional World Wide Web site (*www.tomorrownevertdies.com*). The interactive site, featuring games and video clips, quickly reached 3.8 million hits per day.

MGM's ability to handle such heavy traffic was partly due to an unusual Web site hosting service from GlobalCenter, Inc. in Sunnyvale, Calif.

The young GlobalCenter, an offshoot of Netscape Communications Corp. in Mountain View, Calif., uses load-balancing software just as many service providers do [CW, Dec. 1, 1997]. But analysts said GlobalCenter is unique because it also allows clients to update their Web sites simultaneously at routers located in seven domestic media distribution centers and two abroad.

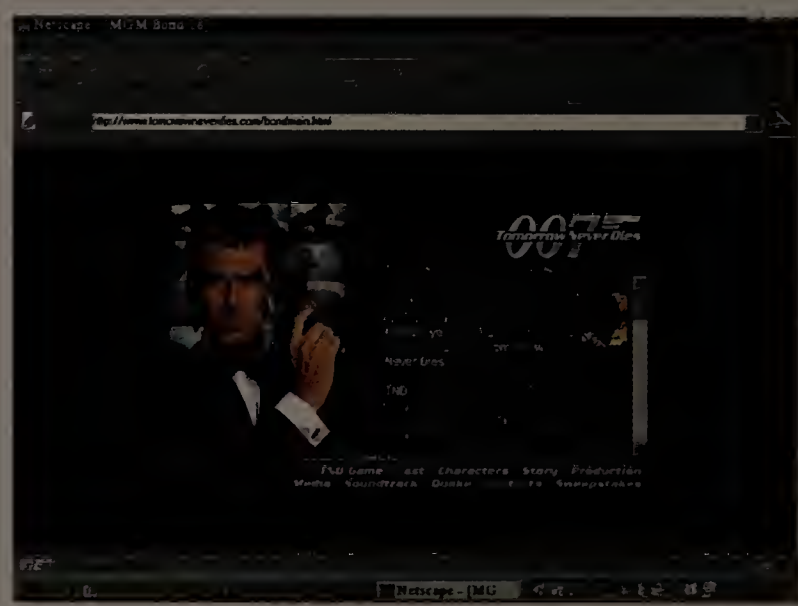
WEB HOSTING

"End users are avoiding router hops that way, and that cuts time," said David Cooperstein, an analyst at Forrester Research, Inc. in Cambridge, Mass.

A HIGH PRICE

GlobalCenter's services start at $1,500 per month, but analysts said some large users might pay about $100,000 per month.

GlobalCenter's distribution service isn't available from any of the other big Internet hosting service providers, but analysts expect the others to catch up soon.



MGM was able to handle heavy traffic at its Tomorrow Never Dies site, thanks in part to GlobalCenter's hosting service

The service has also benefited webmasters in the less-glamorous online travel and stock trading industries.

Biztravel.com, Inc. in New York has been using GlobalCenter to help achieve its goal of providing the fastest customer response time in the online travel industry, officials said.

WIT Capital, an online banking and brokerage firm, used GlobalCenter to avoid freezing and long delays on its site during the October stock market plunge. "We did not experience any of those problems," founder Andy Klein said.

SOFTWARE ALREADY IN USE

MCI Communications Corp., GTE Corp. and other major providers already use load-balancing software, such as the popular DistributedDirector by Cisco Systems, Inc., analysts said. But if they allow distribution of updates to a Web site, the process isn't automatic.

Webmasters and network managers say they are interested in outsourcing the job of providing fast public access to their sites because it might be expensive and time-consuming to do it in-house.

"Keeping an eye on bandwidth is a 24-by-7 job, and that's a distraction that many managers will give to the experts," Cooperstein said. □

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COMPUTERWORLD

The Newsweekly for Information Technology Leaders

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30. Medical/Law/Education
40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
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51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgmt.

OTHER PROFESSIONAL MGMT.

80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

(a) Solaris (e) Mac OS
(b) NetWare (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTStep

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

4. Do you use, evaluate, specify, recommend evaluate or approve the purchase of Internet products and/or services?

❑ Yes ❑ No B4A8 -

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60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./Retailer
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OPINION

Peer review Whose opinion do you trust the most?

Let's say you want to know the real buzz on what PC brand offers the best value or which Web server or enterprise database will really deliver for your company. Do you take the word of well-meaning vendors? Glib industry experts and consultants? Editors wearing computer test lab coats?

Nope. It's your peers who really strike a chord. We confirmed that last summer with a leadership survey in which we asked users what source they favored for product evaluations. The results were a startling but definitive 80% to 20% in favor of peer reviews over laboratory tests.

So when we set out to rank the products that offer the best business value in 1997, we talked to your fellow professionals and came up with our IT Leaders' Choice Awards (see Review Center, pages 63 to 68).

Our survey of more than 850 *Computerworld* readers — all with decision-making clout at their companies — turned up 15 clear winners for 1997. Dell Computer and Hewlett-Packard led the pack, with seven products between them meriting the top ranking of "exceptional value."

In the PC categories, it was clear that traditional powerhouse vendors and reseller channels are being kicked aside by direct-sales upstarts. The three winning PCs were all direct-to-customer models: Micron Technology's Millennia and Dell's Optiplex and Dimension lines.

Not so surprisingly, the qualities that consistently won the hearts of your compatriots were good performance, stellar support and reliability. "There are no surprises in these systems," one manager said approvingly of a Dell desktop machine.

So take a minute to tune out the noise level of all the usual industry hype and look over our IT Leaders' Choice Awards. Think what a refreshing change that will be: listening to people who actually know what they're talking about.

Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

Current Theories

LETTERS

Informix relationship is valuable to Lawson Software

THE QUOTES assigned to me in "Informix calls for backup," [CW, Dec. 15] were the result of "minor surgery" that killed the patient. The largely negative Informix story, buoyed by partial quotes attributed to me and taken out of context, remade my overwhelmingly positive comments about Informix into a graveyard creation.

Lawson Software is pleased with its relationship with Informix Software. It is a relationship that is enjoying a steady increase in business for both parities. Informix values its partners, and Lawson values its relationship with Informix. We like their new, extended management team. We foresee good things for both companies.

I urge you to publicly correct the record for Lawson.

Mark Galloway
Vice president, strategic planning and business development
Lawson Software
Minneapolis

Diversity not the issue

IT WAS disappointing to see more race/gender issue rhetoric in *Computerworld* ["IS recruiters clamor for minority talent," CW, Nov. 3].

Using diversity as a thinly disguised code word for affirmative action and quotas, this article tries to foster the liberal racist notion that minorities (and especially blacks) are different and need special treatment in the form of mentoring, diversity programs, etc.

Information systems is one professional field where a person's success depends a lot more on personal skills and abilities and just plain hard work than skin color or gender.

This is not to say women or minorities don't have difficulties in the workplace, but *Computerworld* would do well to concentrate on what it does so well: reporting news in the IS industry. Please leave the ideology to the mainstream liberal press.

David Schaffer
Kansas City, Kan.
wiz@wws.net

Leave Microsoft alone

MICROSOFT HAS DONE what any other company is trying to do every day: beat the competition. But in this day and age, the only thing that winning gets you is an antitrust suit ["Is Microsoft too powerful?" CW, Nov. 24].

U.S. Attorney General Janet Reno's efforts would be better suited to evaluating the government's own year 2000 problem instead of wasting legal costs on suing Microsoft.

Without Bill Gates standing up to IBM 15 years ago, we wouldn't even be having this discussion. IBMs running IBM-DOS would cover the entire landscape. The computer business should not be the target of governmental meddling.

No matter how big Microsoft is today, it will not dominate the entire industry.

Jason Herres
Information systems manager
Marine Resources Co. International
Seattle
mrci@mrcsea.com

Network computers have a place in the free market

NICE COLUMN by John Gantz in the Dec. 1 issue of *Computerworld* ["Maybe NCs aren't a bad idea after all"].

As a developer completely dissatisfied with the Windows operating system, I hope Gantz's crystal ball is right and the Java/NC environment comes to fruition.

Since things tend to go "retro" (clothes, music, philosophy, etc.), it makes sense that the mainframe paradigm would resurface. Then again, that implies the resurgence of the PC sometime after that. Do I see an infinite loop here?

I don't think we need to worry about one platform vs. another. The free market tends to support the existence of myriad computer "appliances." There will never be a singular panacea device.

> Since things tend to go "retro," it makes sense that the mainframe paradigm would resurface.

Scott Fentress
Application developer
Pfizer, Inc.
New York

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Georgia creates a new "right to hyperlink"

Jeffrey R. Kuester

Should there be a First Amendment "right" to hyperlink? Should such a right exist even when it means one site's link uses a protected trademark without permission?

"Yes," is one interpretation of a recent decision by a federal judge in Georgia in the case of ACLU vs. Miller. The court ruled that a provision of Georgia's short-lived Computer Systems Protection Act is unconstitutional, spelling the end of Georgia's poorly written "Internet Police Law."

One Georgia legislator criticized those who passed the law as "not knowing a gigabyte from a chigger bite."

More important, the court seemed to create a new "right to hyperlink" that could prove useful to Microsoft in its on-going hyperlinking legal battle against Ticketmaster. Ultimately, we should all be thankful for this decision because it helps maintain the future of hyperlinking freedom.

Although one Georgia legislator criticized those who passed the law as "not knowing a gigabyte from a chigger bite," at least the federal judge got it right by invalidating the statute on First and Fifth Amendment grounds.

The judge found the statute to be worded too broadly to survive constitutional scrutiny. When coupled with the strong First Amendment protection granted to the Internet by the Supreme Court in invalidating portions of the Communications Decency Act, the Georgia decision becomes very important to the future of the Web.

The statute criminalized the use of trade names, trademarks, logos and copyrighted symbols on the Internet if the symbols falsely implied that the site had permission to use them. In addition, the broad wording of the statute appeared to criminalize the use of an E-mail address that fails to include the name of the owner of the E-mail address.

The ACLU properly noted that while intellectual property rights are important, the U.S. should never use them as an excuse to go overboard in restricting freedom of speech.

According to the court, "A fair reading of the clause, as written, is that it prohibits the current use of Web page links. The linking function requires publishers of Web pages to include symbols designating other Web pages which may be of interest to a user. This means that an entity or person's seal may appear on hundreds or thousands of other Web pages, just for the purpose of enabling the linking system. The appearance of the seal, although completely innocuous, would definitely 'imply' to many users that permission for use had been obtained. Defendants have articulated no compelling state interest that would be furthered by restricting the linking function in this way."

Because in a non-Internet context such an "implication of permission" ordinarily would result in a finding of trademark infringement, the Miller court's opinion suggests that the usual rules governing trademark infringement actions may not apply with equal force where hyperlinks are concerned.

Consequently, if other courts validate that the "right to link" recognized by the Miller case is indeed grounded in the First Amendment, the ability of trademark owners to limit the use of trademarks is open to question.

That means owners of intellectual property should be very careful when exercising their rights on the Internet, where rules protecting it are clearly undefined.

Thankfully, the courts are beginning to see that even on the 'net we have to preserve the very delicate balance this country has always maintained between intellectual property rights and the First Amendment. □

Kuester is a patent attorney and partner with the intellectual property law firm of Thomas, Kayden, Horstemeyer & Risley in Atlanta. His E-mail address is kuester@tkhr.com.

Package vendors better unbundle year 2000 fixes

William Ulrich

Information technology people roll their eyes at the mention of lawyers and the year 2000. Opportunists are in every crowd, and the legal community has its share. But a lawsuit filed last month in the Superior Court of California has broader implications than most.

On Dec. 3, the firm Milberg, Weiss, Bershard, Hynes & Lerach filed a class action lawsuit on behalf of all individuals and entities that purchased SBT Pro Series software prior to March 1, 1997.

The complaint alleges that SBT Accounting Systems in San Rafael, Calif., breached its warranty on the product based on the inability of older versions of the accounting package to recognize dates starting in the year 2000.

The law firm, according to a recent press release, has "significant expertise" in prosecuting class actions.

According to Steve Hock, CEO of year 2000 research specialist Triaxsys Research LLC in Missoula, Mont., "Milberg Weiss preceded this filing by sending a wave of letters to software vendors warning that they must provide free upgrades to older versions of their products or face legal action."

And they aren't the only ones. At a recent legal conference, another prominent class action firm, Lieff Cabraser, gave a presentation called "The Plaintiff Bar Smells Blood."

What does this mean to users? Assume that your company is using Release 2.0 of a software package that isn't year 2000-compliant. The vendor informs you that if you install Release 3.0, all year 2000 problems will go away.

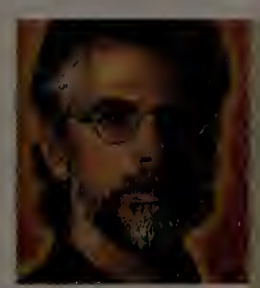
But Release 3.0 has major functional upgrades that could take months to test and implement. This, coupled with the cost of upgrade fees, retraining and the effort required to upgrade package interfaces, makes the situation untenable.

Milberg Weiss' position is that the vendor should give you a compliant version of Release 2.0 that allows you to sidestep those issues and meet your year 2000 deadline.

If the vendor doesn't provide a free upgrade, Milberg Weiss would file a class action lawsuit stating that Release 3.0 must be provided free of charge.

If a vendor decides to make a free version of the new release available, it would be giving away millions of dollars in upgrade revenue.

If, on the other hand, the vendor chooses to retrofit year 2000 fixes back into older releases, it will spend considerable time and capital to upgrade products it supports but no longer sells. This isn't a good situation for a vendor to be in — if it is unprepared.



Class action lawsuits divert key management and technical resources away from other projects.

SBT appears prepared.

According to SBT CEO Robert Davies, all the company's current products are year 2000-ready, and it is providing upgrade kits to customers who are running older versions of the product.

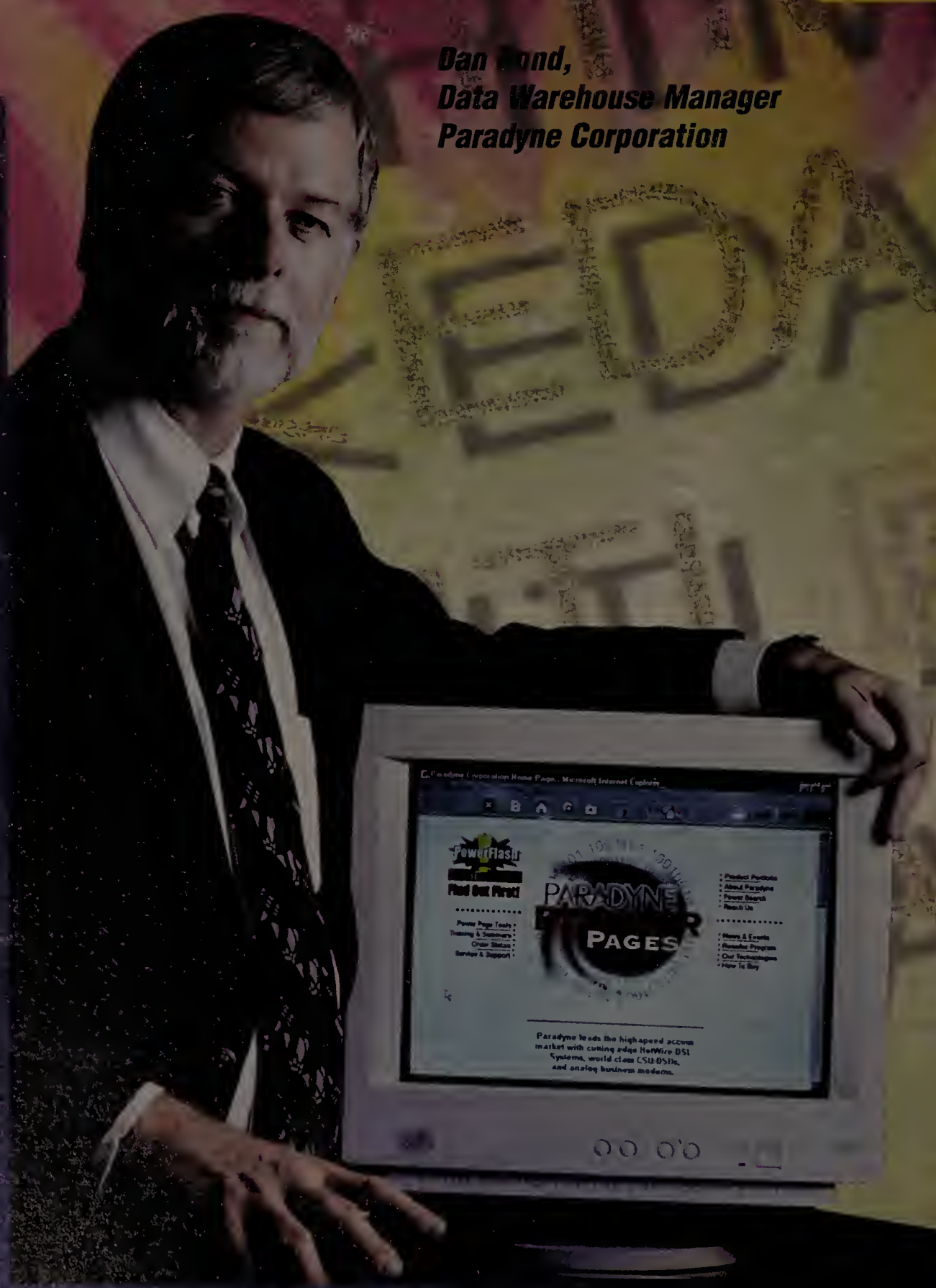
How many vendors are prepared to do that? Many vendors have bundled year 2000 fixes into the latest release of their product, assuming that companies would want the latest functionality.

What they may not have considered is the time required to move to a new release under constrained year 2000 compliance deadlines.

Vendors should be ready when Milberg Weiss and other firms come calling, because unbundling year 2000 fixes may be the best way to beat these suits. □

Ulrich is president of Tactical Strategy Group, Inc. and co-author of The Year 2000 Software Crisis: Challenge of The Century *(Prentice-Hall, Inc., 1997). He can be reached at tsginc@cruzio.com.*

"Our customers were on the Web. Our data was on the mainframe. Our solution was call The Builders."



Dan Bond,
Data Warehouse Manager
Paradyne Corporation

Paradyne Corporation, a pioneer and leader in digital network access, has customers who not only want fast network access, they want fast answers on the status of their orders as well. And that used to mean the company had to process thousands of individual phone calls and manual queries against mainframe transaction data. The company knew the answer was a self-service application on the Web; but how could they integrate a Web reporting system with mainframe legacy data? The answer... EDA middleware and WebFOCUS from Information Builders.

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Taking the ERP trail

Rocky Shoes & Boot, Inc. in Nelsonville, Ohio, a manufacturer and marketer of hunting and hiking boots, has selected the System 21 Style enterprise resource planning (ERP) system from JBA International in Rolling Meadows, Ill., as part of an effort to improve the company's reporting and tracking capabilities. Terms of the agreement weren't disclosed.

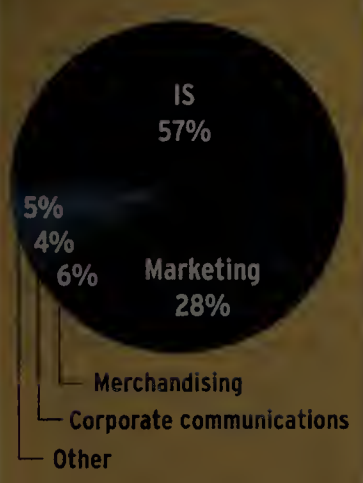
Perot takes 3T bytes

Perot Systems Corp. has purchased 3T bytes of storage from EMC Corp. in Hopkinton, Mass. The Dallas-based systems integrator will use the central Symmetrix system to host mainframe and open systems data and will use EMC's storage software for its various data center relocation projects.

Ardis unit sold

American Mobile Satellite Corp. said it would acquire the Ardis data messaging business from Motorola, Inc. in Schaumburg, Ill. Financial details of the deal, which is subject to government approval, weren't disclosed. The deal is expected to be finalized in the first quarter this year. The Ardis network operates in more than 425 U.S. cities, Puerto Rico and the U.S. Virgin Islands.

Who "owns" retailing Web sites?



Base: 293 IS executives

Source: Seventh Annual Retail Technology Study, Computer Sciences Corp., El Segundo, Calif., and Retail Info Systems News, Randolph, N.J.

Gulf Canada refines budgeting

▸ *Oil company invests in intranet-based system*

By Thomas Hoffman

A $500,000 INVESTMENT in a new intranet-based corporate budgeting system is helping a Canadian oil and natural gas refiner improve its cash flow forecasting and its ability to integrate acquisitions quickly.

Gulf Canada Resources Ltd. faced a 90-day deadline to install a budgeting system before the 1998 numbers cycle kicked off last September.

So it opted to build its own object-oriented system rather than enter a prolonged request-for-proposal process for a commercial system.

Gulf Canada, a $4.48 billion company, previously has had trouble getting timely budget information to its 200 to 300 executives and financial users.

The company is set on a growth-through-acquisition strategy designed to help it expand its Canadian operations and increase its oil and gas output — as evidenced by its 1995 acquisition of Mannville Oil & Gas Ltd. in Calgary.

Budget forecasts are compiled by field foremen who manage a few thousand active oil and gas drilling sites scattered across the far reaches of Northwestern Alberta, where the mosquitoes are so big "they can pick you up

Gulf Canada, page 40

Gulf's Kevin Rasmussen: The intranet-based system will enable field foremen to forecast costs "on a well-by-well basis"

Managers go to Web for job reviews

By Tim Ouellette

A NEW INTERNET SERVICE could give beleaguered managers breathing room to prepare their annual employee performance reviews.

The effort typically can be plagued by a lack of time and consistency, which can irk employees and affect a company's ability to retain staff in a tight labor market.

But observers say users may not be ready to manage personnel documents on the World Wide Web just yet.

Instead, they expect the new KnowledgePoint site to be a good place for users to test the job review method and then buy the software to load on to their PCs.

KnowledgePoint this week will unveil its Performance-review.com Web site. The browser-based application will walk managers through the

Job reviews, page 40

Insurer's intranet helps speed new business

▸ *Aims to improve processing, customer service*

By Bob Wallace

CINCINNATI FINANCIAL CORP. (CINF) is building an intranet that will give its independent agents data that lets them write new policies and process claims faster.

The intranet will be accessible to 1,000 agents in 27 states in 1999. It was designed to replace the time-consuming process of mailing documents and software back and forth with online transactions.

"We wanted to find ways to make it easier for agents to do business with us," said Don Doyle, CINF's customer services manager. "This was an easy call because the planned benefits were ones that they have been looking for."

CINF, in Fairfield, Ohio, is an insurance company with $8 billion in assets that sells property, casualty, auto and life insurance to consumers and businesses.

The intranet project is impor-

CINF, page 40

CINF changes its insurance process

Process	Then	Planned
Starting a policy	Mailed software to agents	Provide price quotes online
Processing claims	Done over the telephone	Provide online access to forms

Yokohama plans for Y2K with Oracle

By Randy Weston

YOKOHAMA TIRE CORP. plans to use a system overhaul to roll smoothly into 2000.

The Fullerton, Calif.-based subsidiary of Yokohama Rubber, Inc. in Japan is standardizing its business processes on Oracle Corp.'s applications, including financials, manufacturing and supply chain management functions.

Mike Siersema, national information systems manager at Yokohama Tire, said year 2000 compliance was first on the company's priority list when it decided to make a $3.5 million investment in new hardware and applications. The company also wants to use the systems improvements to get products to tire dealers more quickly, Siersema said.

Yokohama will get rid of an aging Digital Equipment Corp. VAX minicomputer with cus-

Yokohama, page 40

Gulf Canada

CONTINUED FROM PAGE 39

and carry you away," said Kevin Rasmussen, applications coordinator at the Calgary-based company.

Even though the field foremen are responsible for forecasting costs, they have always been too remote to easily send budget information over dial-up lines to Gulf Canada's corporate accountants.

As a result, the foremen would typically hand their cost estimates to their bosses, who in turn would tinker with them and pass the forecasts up the chain. That led to wide variations in cost forecasts vs. actual expenses, Rasmussen said.

Using EDA/SQL middleware and Cactus object-oriented development tools from Information Builders, Inc., Gulf Canada has been able to retrofit its field force with World Wide Web browsers they can use to forecast costs "on a well-by-well basis," Rasmussen said.

NUTS AND BOLTS

The system is composed of a Sun Microsystems, Inc. SPARC 3000 server running an Oracle7 database.

The long-term plan is to use the budgeting system as a "rolling" 12-month operational tool and not as an annual spot-check so Gulf Canada can react to expense variances more effectively, Rasmussen said.

For example, beginning next week, some users will be able to check field-level production figures against forecast numbers. That will help the company react to underperforming or overperforming "recovery" sites and add or subtract capital where needed.

Because 1998 will be the first full year the system is in use, Gulf Canada probably won't know how much more accurate the system is until the second quarter, Rasmussen said.

Most companies in all industries are able to track performance against budget.

But the sophistication and flexibility of commercial systems varies.

Third-party budgeting systems that have top-down, bottom-up budgeting capabilities include the Pillar system from Stamford, Conn.-based Hyperion Software Corp. and Oracle Corp.'s Financial Analyzer, said Henry Morris, an analyst at International Data Corp. in Framingham, Mass.

Top-down, bottom-up budget views are useful to executives who want to look at top-level budget figures and financial analysts who want to analyze specific results.

Before Gulf Canada's system was installed, "everyone hated budget time," Rasmussen said.

So has easier access to data caused company executives to like budget time now?

"That's going a little too far," he said. □

Yokohama plans for year 2000

CONTINUED FROM PAGE 39

tom applications written in the mid-1980s. Siersema said Yokohama relied heavily on a Unidata, Inc. database running on the system, but felt the database was losing vendor support.

With new Digital Alpha servers on the way — along with the Oracle Applications 10.7 suite and Oracle8 database — Seirsema said his company will be ready to face the millennium when it goes live Oct. 1.

The coming century may be the spark for companies such as Yokohama to turn to client/server systems, but improvement in business processes will continue to feed the flames after Jan. 1, 2000, analysts said.

"The year 2000 is what gets them in the door, but the actual streamlining of the supply chain process is extremely important to these companies," said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass.

"The automotive tire market is extremely competitive, and customers have a number of choices. If Yokohama can't get in the door quickly, Michelin and Firestone are ready to undercut them," Greenbaum said.

Seirsema said getting orders to customers more quickly drives Yokohama's information technology project. "It is aimed at directly reducing the order fulfillment time from about four to six days now to under 48 hours," he said.

That is being done by eliminating some delays in the order processing cycle. With the new system, the warehouse will be able to load tires onto a truck while the pricing information is being calculated — cutting time on fulfilling the order.

TIRE CHANGE

Company: Yokohama Tire Corp., subsidiary of $3.2B Yokohama Rubber, Inc.

Location: Fullerton, Calif.

Employees: 14,000

Divisions: Passenger car tires, performance tires, commercial truck tires and small truck and sport utility vehicles

Pricing is complicated, Seirsema said.

"You have special programs, incentives to move certain products, bonuses. It could be regional, by store, or because a competitor like Michelin may make a move on reducing the price of a certain tire, and we would have to match that," he said.

But Yokohama still has to persuade its users that the new system will help the business. Barbara Triebold, manager of order entry at Yokohama, lived through Yokohama's last major management IS project in the 1980s and knows the pain those kinds of projects can induce.

"I've been with the company for 15 years now, and I know what we can do and how quickly we can do it," she said. "This isn't going to be as quick as what we have now, and we are not going to be able to maneuver around it as easily. I had a lot of questions."

Triebold has been assigned to the project team full time and said the more she digs in, the more she is optimistic things will come together eventually.

But she said she still is skeptical. □

Job reviews

CONTINUED FROM PAGE 39

process of preparing job reviews and then creates text based on their job ratings.

Marc Surette, CEO at LANComp, an 85-person systems integrator in Piscataway, N.J., said the Web page review could improve the company's performance review process.

"We just did a staff performance review last year with little bland forms," Surette said.

"There was no space to give people the feedback you really want to use, and that is a really big issue to help retain talent," he explained.

Danny Alms, an engineering technician at Sea Ray Boats in Palm Coast, Fla., said he uses the existing PC version of KnowledgePoint's product.

He said he probably won't change to the Web-based service, but he agreed that the features make both managers and employees happy.

"It makes things a lot more standardized, saves time and managers are giving employees a lot fairer evaluations," Alms said.

PRICE TAG

Performancereview.com charges $10 per use. Annual subscriptions to the site cost $89.

That will make the offering most attractive to smaller companies or remote offices limited by time constraints and budgets to buy and install PC software for the task, observers said.

That is because a single desktop license of the PC version, Performance Now, costs $100. Pricing for a site license starts at $5,000. And KnowledgePoint's current Web service for writing up job descriptions (*www.jobdescriptions.com*) has seen most of its hits come over the weekends or in the evening hours — when managers have time at home to write these kinds of documents.

Still, "once you do more than a few reviews [online], you might as well buy the PC software," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass.

Chris King, an analyst at Meta Group, Inc. in Stamford, Conn., said KnowledgePoint was on the leading edge of software companies who are trying to rewrite their products for subscription purchase.

The Petaluma, Calif., company plans to offer an intranet version of Performancereview.com in the future.

That will let large companies offer the service on a private intranet. □

& IS managers offer effective performance review tips. Page 58

CINF

CONTINUED FROM PAGE 39

tant for competitive reasons, because CINF agents are independent businesspeople who often work with as many as 10 other insurance companies.

Rick Theders, president of the Clark-Theders Insurance Agency, Inc. in Cincinnati, said he sees big benefits.

"CINF is making a commitment to provide a more efficient method of processing insurance policies for customers," Theders said. "This will allow us to provide better customer service and generate more and new business for CINF."

"Using intranets ... is considered the latest and greatest in the insurance industry" – Ann Purr, Life Office Management Association

Complete processing of some policies today can take more than 30 days — the time it takes for it to get on to the CINF mainframe policy system, Doyle explained. With the intranet, the process can be done online because agents will be able to get price quotes using the network, rather than waiting for CINF to mail software.

"The insured party will get the product much quicker," Doyle said. With the intranet, processing a claim could be done in real time. Field adjusters have to verify what their customers are covered for, which is done today via telephone. "The benefit to the insured is that claims are settled faster, which is also a benefit to us. It means we become more efficient and can handle more claims," Doyle said.

"They're at the very front of the curve with what they're doing," said Ann Purr, international president of the Life Office Management Association, an Atlanta-based user group of more than 600 insurance companies. "Using intranets to [give] agents access to information is considered the latest and greatest in the insurance industry."

Kenneth Abramowitz, a health care analyst at Sanford C. Bernstein & Co. in New York, agreed. "It sounds like they're ahead of most insurance companies," he said. "Anyone who speeds decision-making and provide accurate quotes will have a clear competitive advantage."

CINF uses 3Com Corp. Asynchronous Transfer Mode switches to provide the switching foundation for the intranet. □

The Internet

Electronic Commerce • The World Wide Web • Intranets

Briefs

Exploring the Mac

Microsoft Corp. last week announced availability of its Internet Explorer 4.0 browser for the Macintosh. Key features include a specially developed Outlook Express mail client, Active Channel content, Dynamic Hypertext Markup Language support, NetShow multimedia software and a personal World Wide Web server.

Web sales increase

Merchants who use electronic-commerce software from Viaweb, Inc. posted a 69% sales increase during the first two weeks of December compared with the final two weeks of November, the Cambridge, Mass., company announced.

Bull market online

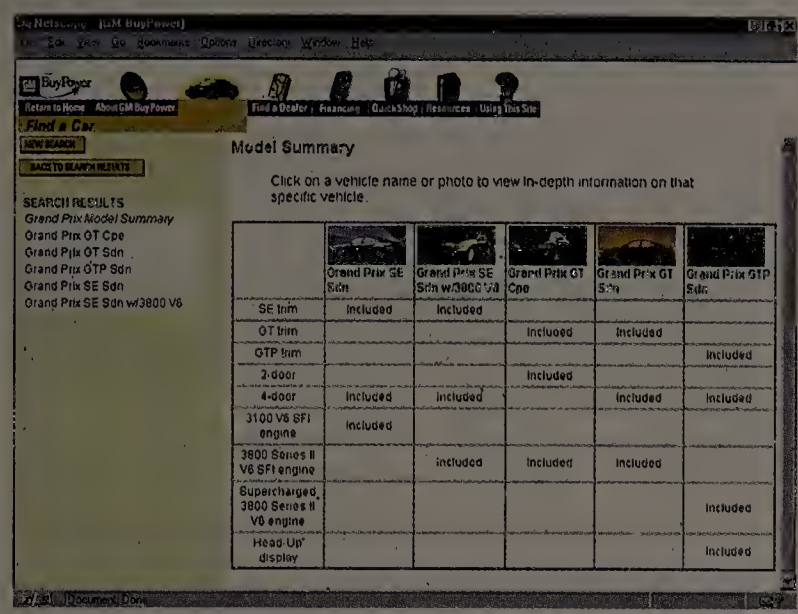
The bull market has produced a stampede of investors to online broker ETrade Group, Inc. (*www.etrade.com*). In its first fiscal quarter ended Dec. 31, ETrade said it had 325,000 accounts, a 188% gain from a year earlier. ETrade reported net income of $4.9 million. Earnings were 16 cents per share, excluding a one-time charge of 4 cents per share for its acquisition last month of the OptionsLink Division of Hambrecht & Quist LLC in San Francisco. Revenue for the quarter was $51.1 million, more than double that of the same quarter a year ago.

DOWN AND UP

Content sites on the Web could begin turning a profit from advertising because the **cost per page should drop from 4.3 cents today to 1.7 cents in 2000.** But **publishers** of those information sites will **have to pay more** to promote traffic and market share, so the **total cost** for a high-end site **should double.**

Source: Forrester Research, Inc., Cambridge, Mass.

GM site gets sales, mixed reviews



The GM Buypower Web site lets users compare GM's and competitors' cars, then points them to dealers

▸ *Surfers compare features, check dealers' stock*

By Sharon Machlis

ABOUT TWO MONTHS after launching an ambitious four-state pilot World Wide Web site for consumer car sales, General Motors Corp. officials are thinking of taking *www.gmbuypower.com* national.

"So far, we're very pleased," said Leo Drew, manager of finance and marketing for the initiative, who works at the Thousand Oaks, Calif., office. "We've gotten a tremendous amount of dealer inquiries."

Dealers, however, offered mixed reviews, with some saying that the site directs high-quality sales leads their way and others claiming results are disappointing.

The GM Buypower Web site offers detailed comparison shopping for vehicles made by GM and its competitors.

The site directs visitors who choose a GM model to a dealer nearby and then lets them search the dealer's inventory to see what is in stock. Surfers can also schedule test-drives, ask dealers to hold a vehicle and get financing information.

The site has attracted about

GM, page 42

REVIEW▸

Java tool adds simple links to data

By Howard Millman

SYMANTEC CORP.'s Visual Cafe for Java, Database Development Edition will help professional developers build Java-based applications that link to back-end databases.

The package includes some worthwhile time-savers such as a drag-and-drop visual forms editor that builds links between the front end (user interface) and the back-end databases using Java Database Connectivity, Open Database Connectivity (ODBC) and native drivers.

Another new time-saver — debugging from within Netscape Communications Corp.'s Navigator, Microsoft Corp.'s Internet Explorer and other browsers — helps resolve the dreaded "write once, debug everywhere" syndrome that tarnishes some Java code.

I tested Version 2.1 of the Java Database Development Edition (JDE), released in December. Other elements new to 2.1 include its support for Sun Microsystems, Inc.'s Java Develop-

Java tool, page 42

Colonial Savings' Frank Manci: "The programmers will go nuts over this"

Java kit gets better security

By Sharon Gaudin

USERS ARE ANXIOUS to find out if the security advances in Sun Microsystems, Inc.'s latest Java Development Kit (JDK) live up to their billing.

JAVA DEVELOPMENT KIT

Sun released the beta version of its JDK 1.2 about three weeks ago, highly touting its new and improved security features. Aside from giving users Java Foundation Classes and new JavaBean components, Version 1.2 was designed to let developers customize the security in their applications to give different users different privileges, depending on their role in the organization and their ability

Java security, page 42

After initial rush, intranets get serious

By Carol Sliwa

INTRANETS SPRANG UP far and wide last year as corporations opted to take advantage of Internet technology to give their employees access to all sorts of information.

This year, companies will use the technology for more business-critical purposes — sales force automation, supply-chain management, financial operations and to connect with business partners and customers, industry analysts predicted.

INTRANETS FOR IT

"It's only been since people brought Internet technology within the corporate walls that they've realized they could apply these same models to some of the traditional IT processes and business functions," said Allen Bonde, an analyst at Extraprise Group, Inc., a Boston-based consultancy that specializes in Internet, intranet and extranet applications.

"Uniformly, companies that we talk to want their core business applications to work well with and be integrated with their intranets," Bonde said. Benefits include a universal client that is easy to maintain. "People have seen what you can do, and they want it," he said.

Enterprise resource planning vendors, including SAP AG and The Baan Co., are all intranet-enabling their products to keep up with demand, Bonde said.

Other options for companies include retooling existing applications or building custom applications from scratch.

Xilinx, Inc. plans to use tools

Intranets, page 45

INTRANET ADOPTION

Top applications used by surveyed companies

Marketing	62%
Customer support	48%
Human resources	34%
Document management	33%
Finance	30%
Electronic commerce	26%
Sales force automation	17%
Supply-chain management	9%

Base: 100 IS managers at Fortune 1,000 companies; multiple responses allowed

Source: The Extraprise Group, Boston

GM site gets mixed reviews

CONTINUED FROM PAGE 41

130,000 hits and 3,000 unique users daily and has generated about 1,500 inquiries seeking specific dealers in California, Oregon, Washington and Idaho, according to Drew.

Similar information is available for noncomputer users via the toll-free telephone number (800) 462-8976.

"It's nice. Some people come in so informed," said Dennis Oswalt, Internet manager at Brooks-McKnight Chevrolet Geo, Inc. in Bellevue, Wash. One customer even walked in with a vehicle identification number in hand, asking to purchase that specific car, he said.

But the elaborate site has some drawbacks, critics said.

"It's been nowhere near the initial expectation," said Steve Dicochea, general sales manager and GM Buypower manager at Central Chevrolet in Fremont, Calif.

One problem, he said, is that surfers must use up-to-date browsers — at least Version 3.02 of Netscape Communications Corp.'s Navigator or Microsoft Corp.'s Internet Explorer 4.0. He estimated that half of his customers have trouble accessing the site because they use older browsers. "I think the concept is good, [but] it's running on three cylinders instead of four," he said.

Some dealers also fear that existing customers will use the site to find better prices, Dicochea said.

BIG INVESTMENT

Dealers need a dedicated PC, phone line and fax machine to be part of the program and must attend training. After all that, Dicochea said, he has sold just one car directly from the program.

For now, efforts to sell vehicles in cyberspace remain in the early stages, said Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston. "It totally flies in the face of everything everybody said a year ago," he said, referring to the widely held belief that big-ticket, high-margin items can't be sold over the Internet.

"But that sort of thing is going to creep up in other areas," Stevens added. "It's the right idea."

Drew declined to say how much the site cost, except that it is a "substantial investment for GM."

But even if the site isn't directly generating revenue, GM — which spends millions of dollars on advertising and marketing campaigns — is content if people just browse. "We're very interested in exposing our products to shoppers as well as buyers," Drew said. □

Java tool

CONTINUED FROM PAGE 41

ment Kit 1.1, including JavaBeans components and component architecture, and Symantec's speedier Just-In-Time 3.0 (JIT 3.0) compiler. The new compiler will help accelerate Java's and JDE's acceptance as enterprise-capable products by improving both the development cycle and performance.

For example, Symantec claims that JDE's runtime performance is significantly better — faster by as much as 45% compared with previous versions.

I didn't test runtime execution performance and offer one note of caution about it: To obtain the performance increase, the runtime platform's Java Virtual Machine (JVM) must support the JIT 3.0 compiler. If the runtime platform doesn't have the JIT 3.0 compiler, execution speed is then governed by the platform's older, presumably slower, native compiler.

So far, Sun and Netscape have licensed Symantec's compiler technology but haven't yet incorporated it into their products.

A second compiler translates Java byte code into native x86-based code for faster runtime execution of applications designed to run in proprietary environments, such as Windows, rather than Java.

When run in a non-Java environment, an application's runtime performance is governed by the JVMs built in to the local operating system.

The new incremental debugging feature minimizes the need to recompile after every bug fix. Because it reads just the code that has changed, it can save hours of a developer's time.

In addition, JDE's debugger provides now-standard features such as conditional breakpoints, a threads view and the ability to step into and over code. Though the debugger is easy to use, I thought it less intuitive than the debugger in Borland International, Inc.'s JBuilder [CW, Dec. 8, 1997].

JDE offers both a third-generation language (3GL) and rapid application development integrated development environment. If you're more comfortable with coding manually in a 3GL environment, you can use the Source Editor and hierarchical file and project management architecture. Otherwise, JDE's Form Editor will automatically generate code for you in the background as you drag and drop elements in the foreground. Even if you prefer hard coding, the Form Editor is an easy introduction to learning Java's syntax.

JDE's Source Editor is easy to use and allows you to define macros, but it isn't as readily customized as Borland's JBuilder, which lets you select from several key-mapping schemes. Developers who are used to more powerful editors could find their productivity diminished.

Working in the Form Editor, the package's main window, I wrote a stand-alone applet and edited one of the package's samples. I selected components from the floating Tool Palette and dragged them into the design area. JDE's Interaction Wizard provides additional help in fine-tuning your application's programmatic logic. The Wizard's pick list simplifies associating a response to an action. For example, a text box changes shape or color as a mouse passes over it.

SAVING TIME

Another time-saver, JDE's DbNavigator, lets you view databases mounted on the servers to which you are connected. DbNavigator requires a middleware Workgroup Server called DbAnywhere to examine the databases. DbAnywhere, which is included in the package, resides on the World Wide Web server and facilitates database queries.

In building test applications, I used JDE's DbAware JavaBeans to accelerate modeling the database queries. DbAware works with any ODBC-compliant database as well as SQL databases. After establishing the link, I dragged the link onto the applet or form windows and dropped it. The process worked smoothly.

Symantec supplies about 100 prebuilt JavaBeans. You can readily modify those, design your own or add third-party components using the new Insert Class Wizard.

Project management features include source code application programming interface version control and specific support for Intersolv, Inc.'s PVCS and StarBase Corp.'s versions.

By way of an introduction to the product and to Java, I worked with the package's "Getting Started" tutorials. That proved to be a couple of hours well spent. It is highly recommended. □

Millman operates Data System Services Group, a vendor-independent consultancy. He can be reached at hmillman@ibm.net.

PRODUCT REVIEW

▸ *Visual Cafe for Java, Database Development Edition, Version 2.1*

OVERALL B GRADE

SYMANTEC CORP.
Cupertino, Calif.
www.symantec.com

Platforms: Windows 95, Windows NT, Macintosh

Price: $500

Pros: An intuitive, comprehensive development environment that generates pure Java code. Native x86-and Java Virtual Machine-compatible compilers accelerate Java's underwhelming runtime performance.

Cons: Sporadically reported syntax errors where apparently none existed.

Java security improved

CONTINUED FROM PAGE 41

to use the software.

JDK 1.2 also was designed to give applets access to more system resources while still keeping them away from integral areas of the system where a rogue applet could do serious damage, such as shutting down systems and deleting or changing files.

"I'm very capable, so the chances of me screwing up a file or downloading a bad applet are slim," said Tom Obrey, chief operating officer at PixelMedia, Inc., a multimedia development company in Portsmouth, N.H. "But there are other people here who shouldn't have full access. Before this modification, customizing access accurately was impossible."

Li Gong, a Java security architect at JavaSoft, the Java-focused arm of Sun, said the company rewrote Java's security model for the new version of the JDK.

Under the previous model, the Java-enabled system would identify an applet being downloaded and automatically give it very limited access to the system. The new version of the JDK, which would be built in to a browser, would be able to identify the applet and the resources it requires, then approve that access if it meets criteria set by the user.

"An applet may just want to display a Web page," Gong said. "And it may only need to get into the font file, and that's OK. Before, it wouldn't have been let into any files."

"The programmers will go nuts over this," said Frank Manci, network technical manager at Colonial Savings F.A. in Fort Worth, Texas. "It gives them more control. That's what they need."

MORE POWER, TOO

Obrey added that he also needs his applets to be more powerful, and he said that is what he believes developers will get with JDK 1.2.

"It gives you options other than yes or no," he said. "Instead of giving blanket instructions for every applet that comes in, access can be more tailored to what it needs to do."

Jack Grimes, a senior vice president at San Francisco-based Visa International, Inc., said he is looking forward to getting better control with JDK 1.2.

"Right now, there's no way to download an applet and store information locally," Grimes said. "That provides protection, but it's not all black-and-white. Sometimes, operators want to download something and change their machine. This allows them to do that in a secure way."

JDK 1.2 is expected to be generally available by midyear. □

NEW APPLICATIONS ARE

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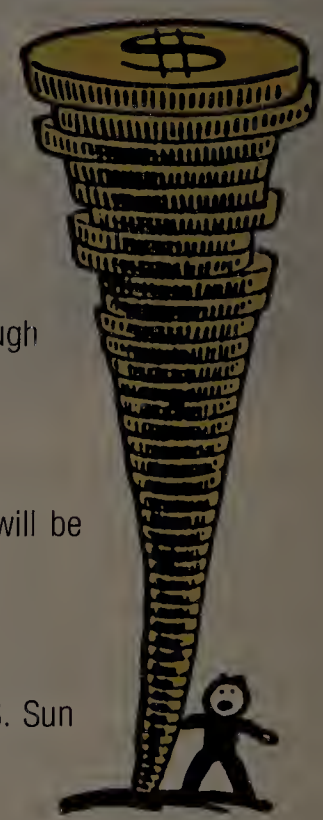

Sun microsystems

And the best news? All ten winners, including the $10,000 cash winner, will be announced at the April 6–8 reseller conference. Seven short days before April 15th. THE NETWORK IS THE COMPUTER.™

THE BAD NEWS: THAT'S A BINARY NUMBER.

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Intranets

CONTINUED FROM PAGE 41

from its database vendor, Oracle Corp., as well as put some newly hired programmers to work on custom applications.

Through interactive Web-based applications, the San Jose, Calif., chip maker wants to give sales partners access to customer and pricing data and let manufacturing partners, such as assemblers and testing firms, input production status information in real time.

That will let Xilinx more reliably tell customers when parts will be delivered.

"I think we've all bought in to the paradigm of intranets, extranets, etc., and now we're just going to be more sophisticated in how we use them," said Sandy Sully, chief information officer at Xilinx.

And more sophisticated usage will mean more planning this year. Up to this point, companies often developed intranets without much forethought because it was easy, inexpensive and a natural extension of their networks. Now, they'll have to be more deliberate in their approach, analysts said.

"I think IT now owns [intranets] and has to manage them effectively. They have to plan and budget and coordinate the rollout and train people," Bonde said.

There also will have to be some cultural change when companies that adopt a development approach designed to make it easy for them to move information from one application to another, said Michael Goulde, an analyst at Boston-based Patricia Seybold Group.

As companies increasingly connect other organizations to their extranets, security will become an ever-greater concern, predicted Bill Gassman, an analyst at Stamford, Conn.-based Gartner Group, Inc.

But the prospects are improving with advances in digital certificates, Security Sockets Layer technology and virtual private networks, some said.

"The security issue is darn close to being resolved with the infrastructure that's out there," said Tim Sloane, an analyst at Aberdeen Group, Inc. in Boston. "So companies are now ready to make their first tentative steps to link businesses together." □

NEW PRODUCTS

HYDRAWEB TECHNOLOGIES, INC. has announced a new series of Hydra load-balancing appliances for content servers that support nonstop applications such as electronic commerce.

According to the New York company, the Hydra 9000 Series for extranets, intranets and Internet service provider hosting is capable of handling up to T3-level 45M bit/sec. throughput and 40,000 concurrent connections. The Hydra 2000 Series for enterprise online services can support 80M bit/sec. throughput and 140,000 concurrent connections. Pricing for the Hydra 900 Series begins at $5,000, including a two-server license. The Hydra 2000 Series begins at $10,000.

HydraWEB Technologies
(212) 809-5900
www.hydraweb.com

INTEGRATIONWARE, INC. has announced E:Folders 2.0, a set of 12 applications for creating business intranets on TCP/IP networks.

According to the Deerfield, Ill., company, the package's applications are objects that can be created and stored in a user-definable, hierarchical folder structure similar to Windows folders. Basic application objects include Bulletin for company announcements, Document for uploading and downloading company files, Event for meeting schedules, Task for project tracking and Skill for employee databases. It costs $4,995.

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Louis Poulsen & Co. smoothes their transition to SAP R/3 and open systems with PATROL

Denmark's Louis Poulsen & Co. A/S is known internationally as the manufacturer of the world-famous PH lamps, and as sellers of electrical appliances. Louis Poulsen has its production wing based in Denmark, but sales and distribution offices are spread around the world on four continents. Consequently, it is a company with simultaneous requirements for advanced production management, effective logistics, and continuous budget control across a geographically distributed environment.

To more effectively meet these requirements, Louis Poulsen decided to move their IT operations from an IBM mainframe system to an SAP R/3 solution running on IBM RS/6000 hardware with the Informix RDBMS.

The benefit is obvious when the entire system is running smoothly – no matter where in the world requests come from, everyone receives up-to-date and exact information. However, when things are not running smoothly, the problems are also obvious.

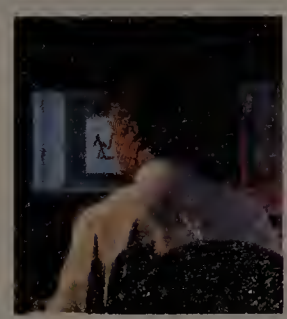
Louis Poulsen realized they could more effectively utilize client/server solutions if they made automated management part of their overall management strategy. Their first step was to introduce the IBM NetView product for management of their network environment. The next step was to incorporate automated application and database management through the PATROL® Management Suite of products from BMC Software.

Peter Jacobsen, manager of IT operations states that, "without a doubt, automated monitoring of the Informix database, especially the PATROL features that help ensure log files do not overflow, has helped avoid a number of situations that would otherwise have resulted in an outage."

When BMC Software announced in 1996 a PATROL Knowledge Module that would proactively manage SAP R/3, it was an easy decision for Louis Poulsen to trial the product. "SAP R/3 comes with a systems management tool called CCMS," says Jacobsen, "but to use it you need manual interaction. PATROL gave us the ability to automatically monitor relevant R/3 parameters and, at the same time, have information about them presented to us in context with other information from PATROL about our databases and platforms. With PATROL, we get a complete overview about how our application environment is operating."

Through PATROL, Louis Poulsen learned of a number of important parameters in their application environment that could be monitored and tuned to support higher application availability and improve performance – parameters they didn't even know the existence of before PATROL. Now, at any time, they have instant access to this important information. Says Jacobsen, "With PATROL, we have a tool that allows us to drill deep into our systems, applications and databases for information. Plus, PATROL lets us know if changes we are making in one area of our environment will have a negative impact on other areas. There are still many things we have to learn about PATROL, but we definitely know it is necessary for future management and tuning of the system as well as our insurance for keeping up with the end users' demands for availability."

"SAP *believes that PATROL® currently offers one of the leading solutions for in-depth monitoring and management of R/3. It is important that our customers have management tools like PATROL that can ensure optimal performance and high availability.*"



Dr. Arnold Niedermaier,
Technology Marketing
SAP AG

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ComputerWorld Customer Satisfaction Survey*

	Cabletron	3Com	Cisco	Bay
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Reliability	79%	57%	76%	67%
Manageability	50%	17%	36%	19%
Expandability	76%	43%	48%	40%
Compatibility	82%	50%	64%	51%
Overall Satisfaction	79%	50%	52%	37%

*Percentage of customers responding with "very good" rating

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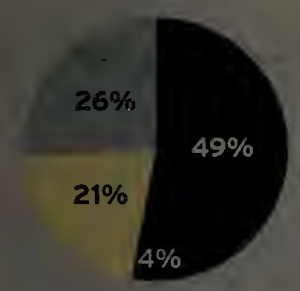
Briefs

LDAP deployment plans

Percentage of companies worldwide that plan to deploy LDAP directories



- Will evaluate products in next 12 months
- Will purchase and deploy products in next 12 months
- No plans to deploy
- Didn't specify

Base: 93 Fortune 1,000 IS professionals

Source: The Radicati Group, Palo Alto, Calif.

Mac mail client

San Diego-based Qualcomm, Inc. is shipping a new version of its Eudora Pro electronic-mail client for the Macintosh. It supports multithreading, the Lightweight Directory Access Protocol standard and Hypertext Markup Language. It costs $39.

HP cuts hub prices

Hewlett-Packard Co. cut prices on unmanaged hubs by up to 46%. HP cut the price of its HP AdvanceStack 100Base-T Hub-8TXE — a Fast Ethernet hub — from $799 to $429. It also reduced the price of two Ethernet hubs: its AdvanceStack 10Base-T Hub-8E went from $179 to $145, and its AdvanceStack 10Base-T Hub-16U went from $419 to $319. The prices are in effect now.

Test tool for Win 95

Frontline Test Equipment, Inc. in Charlottesville, Va., released Serialtest Async for Windows 95, a testing package that will let any PC work as a full-featured serial data and protocol analyzer. It is shipping now and costs $395, which includes the cable set and software.

Support staffers get holiday hangovers

▸ *End users' time off, celebrations lead to woes*

By Patrick Dryden

AS EMPLOYEES crawled back to work after the holidays, IS managers and service providers had to deal with special problems caused by days off and Christmas celebrations.

Help desk staffers had to supply more than the usual number of forgotten passwords, and technicians — most of whom requested anonymity during interviews — had to cope with some odd situations, including the following:

- A server that shorted out when it sucked some nearby tinsel through its cooling fan.
- Some spirited engineers who messed up a gas chromatograph by roasting chestnuts in its oven.
- Underwear that turned up in the tote bag of a laptop sent for repair to one information systems shop, perhaps evidence of an impromptu office party.

Following holidays and weekends, help desks report a surge in calls about problems ranging from forgotten passwords to tinsel in the server.

At this time every year, outbreaks of computer viruses and games plague corporations, according to Drew Arlo, a vice president at New York integrator Infinite Technology Group. "Our service volume goes through the roof," Arlo said.

Commonplace are reports of keyboards and desktop PCs wounded by party drinks, cookie crumbs or gooey treats, and screens marred by taped cards or decorations.

And technicians dispatched throughout Manhattan last week reported that many power supplies were "popping like lightbulbs" when users returning from holiday vacations switched on dormant PCs in older buildings that are prone to power surges, Arlo said.

"The workload has always been horrendous after a holiday or long weekend," said Vic Syracuse, vice president in charge of the network operations center and help desk at Atlanta-based Vanstar Corp.

Hardware failures have decreased as PCs become more reliable and draw less power, Syracuse said. Now most callers request help resetting passwords, he said.

"The longer the holiday, the easier it is to lose brain cells," said Ken Shaurette, information security systems staff adviser at American Family Insurance Group in Madison, Wis. "It's hard to recall what they used last Friday, let alone after a week."

In fact, at the Department of Labor and Industries for the state of Washington, 80% of calls on any Monday relate to passwords, said Gordon Swarthout, technology asset manager at the agency in Olympia.

Besides forgetting passwords, users may also require new ones because of scheduled maintenance or system migra-

Support staff, page 48

ATM, wireless LANs set for takeoff – again

By Rebecca Sykes and Nancy Weil

The market for two networking technologies that have been intensely hyped but often failed to live up to their billing — wireless LANs and Asynchronous Transfer Mode (ATM) — is once again poised to take off, according to new studies.

After sluggish growth during the past couple of years, the market for ATM will grow exponentially, eclipsing the $1 billion mark by 2001, according to studies by market research firms Dataquest in San Jose, Calif., and Communications Industry Researchers, Inc. (CIR) in Charlottesville, Va.

Increasing vendor compliance with the IEEE 802.11 standard will help the wireless LAN market triple in revenue by 2003, according to a study by Boston-based Frost & Sullivan.

Dataquest estimates 1996

Networking, page 48

• Frame relay connects to IP

New switch could save long-distance charges

Netrix Corp. Network Exchange 2210 features:

- Gateway switch for sending voice, data or fax over IP or frame relay
- Two to 96 simultaneous voice conversations per device
- Pricing that starts at $500 per port

By Matt Hamblen

A NEW SWITCH that connects voice, fax and data calls between frame-relay and Internet Protocol networks promises to reduce one company's monthly telephone costs drastically by avoiding traditional long-distance charges.

Internet service provider CharacterLink.net has linked its Oklahoma City offices to its parent company's headquarters near Chicago over the Internet using Network Exchange 2210, a gateway switch from Netrix Corp. in Herndon, Va. The switch routes voice and data calls across IP networks but can also make frame-relay connections to IP networks. That will let CharacterLink.net connect branch offices using whichever protocol is cheaper in each case.

"We expect to see our phone bills dwindling down to almost nothing," said Matthew Jensen, communications supervisor at CharacterLink.net.

Rather than paying more than 5 cents per minute in long-distance costs, the company could now pay as little as 1 cent per minute, Jensen said.

CharacterLink.net plans to add Netrix switches to branch offices in Russia, New Zealand and Taiwan in the near future. In those cases, the cost savings will be even more dramatic because rates to those countries can exceed $2 per minute. The Internet service provider expects to save $250,000 in phone calls in the coming year by connecting those offices across the Internet.

The service provider's phone calls could now cost as little as 1 cent per minute.

Voice quality over the Internet with the Netrix switch is "incredible," Jensen said. "I called my boss outside Chicago and told him 15 minutes into the call that I was calling over the Internet, and he didn't believe me."

The advantage of providing a gateway between frame relay and IP is that companies with frame-relay networks can add IP links for voice where they make sense without abandoning frame connections over a wide-area network.

Frame relay, page 48

Telecom union tries to block big merger

By Joanne Taaffe

A U.S. LABOR union, the Communication Workers of America (CWA), has filed a complaint with the Federal Communications Commission, asking it to block WorldCom, Inc.'s proposed merger with MCI Communications Corp. It claims that the new company would wield too much power over the Internet.

If MCI merges with WorldCom, the former competitors would together own more than 63% of the Internet backbone, giving the new company too large a say over Internet access and pricing, the CWA statement said. The union pointed out that the merged company, which would own some of the market's largest Internet service providers, would have the potential to discriminate against other service providers by offering its own subsidiaries more favorable interconnection deals.

The CWA also claimed that the merged company's pursuit of corporate customers could translate into the stifling of MCI's planned $1.5 billion investment in local networks. The union's petition said it fears that this, in turn, will fetter the growth of an estimated 75,000 jobs within the U.S. telecommunications industry.

WorldCom, which has been predicting that the FCC will approve its bid for MCI in the first quarter, was unavailable for comment. The European Union is also evaluating the planned merger. □

Taaffe writes for the IDG News Service in Paris.

Support staff's holiday hangovers

CONTINUED FROM PAGE 47

tions. For example, during the recent holidays, the agency upgraded many desktop operating systems and LAN servers, Swarthout said.

To cope after holidays and weekends, Swarthout said, the agency established a process to track changes that affect users and put extra help desk staff in place early for the predicted call load.

One common problem, infestation by computer viruses, doesn't have to grow when users return from a holiday or weekend spent working on the home PC and cruising the Internet, Shaurette said, "if you are adequately prepared to deal with them on a regular basis." The insurer automatically scans local disk drives and all network resources to prevent virus problems, he said.

As for keyboards and other components, "We know we can't prevent anyone from snacking at the desk," Swarthout said. "It's better to keep low-cost items on hand than to let someone sit idle."

One holiday-induced problem that won't go away, however, is the backlog of messages.

"I came back to find hundreds of E-mail messages and five inches of interoffice mail," said Matt Maguire, manager of end-user technology at Domino's Pizza, Inc. in Ann Arbor, Mich.

"Most everyone here is still digging out," Maguire said. □

Networking technologies

CONTINUED FROM PAGE 47

ATM sales at $76.9 million. It expects that sales will almost double this year, to $375.5 million. It predicts $1.28 billion in ATM sales by 2001. CIR expects the U.S. market for ATM products and services to top $2 billion within a decade.

CIR's report says that ATM has been transformed from a technology expected to dominate all aspects of enterprise networking to a platform specifically for backbones and network services.

The wireless LAN market — which is robust, topping $187 million in revenue in 1996, up 45% from 1995 — will continue to grow, especially in schools and hospitals, according to Frost & Sullivan's report.

As for the wireless LAN players, the top three companies — Lucent Technologies Bell Labs Innovations, Proxim, Inc. and Aironet Wireless Communications, Inc. — control 59% of the total market, the study said. □

Sykes and Weil write for the IDG News Service in Boston.

NEW PRODUCTS

EICON TECHNOLOGY CORP. has announced the DIVA T/A ISDN Modem, an external Integrated Services Digital Network (ISDN) modem for small offices that has auto-switch detection and Always On Dynamic ISDN features.

According to the Montreal company, the modem works with analog devices such as standard telephones and faxes and was designed to consolidate the small office environment on a single ISDN line. It has a throughput of 128K bit/sec. and up to 512K bit /sec. with onboard compression. Phone services include Caller ID, call waiting, holding, transfer, three-way calling and distinctive ringing. The modem costs $349.

Eicon Technology
(514) 745-5500
www.eicon.com

RAPTOR SYSTEMS, INC. has announced Eagle 5.0, firewall software with virtual private network security.

According to the Waltham, Mass., company, the firewall has a threefold increase in performance, a native Windows NT graphical user interface and an integrated Java content scanner. It includes exportable 56-bit encryption and support for symmetrical multiprocessing and content filtering. All time-related configurations are year 2000-compliant.

Pricing ranges from $3,995 to $15,000, depending on the number of users.

Raptor Systems
(781) 487-7700
www.raptor.com

COMPUTER MAIL SERVICES, INC. has announced S-Bridge Version 3, mail-to-Internet gateway software.

According to the Southfield, Mich., company, the 32-bit, Windows-based gateway enables the exchange of electronic mail and attachments among LAN messaging systems, such as Microsoft Corp.'s Mail and Lotus Development Corp.'s CC:Mail, and the Internet.

An antispam feature lets users block reception of unsolicited, junk E-mail. International character mapping helps administrators support non-English-based clients.

Pricing starts at $690 for a 15-user license.

Computer Mail Services
(248) 352-6700
www.cmsconnect.com

Frame relay

CONTINUED FROM PAGE 47

Netrix joins dozens of other vendors such as Cisco Systems, Inc. in San Jose, Calif., and Lucent Technologies Bell Labs Innovations in Murray Hill, N.J., in offering voice-over-IP gateways or services. But only Netrix so far has linked IP with the frame-relay networks, analysts said.

That would let U.S. companies run frame-relay connections at home and make IP connections abroad, where it is often hard to get frame-relay services, said Hilary Mine, an analyst at Probe Research, Inc. in Cedar Knolls, N.J.

RELIABILITY CONCERNS

It has been possible to run voice over frame relay and IP for about two years, but such connections are still unusual because of user concerns about the reliability of the Internet to carry voice traffic.

Both protocols use the Internet as a backbone, digitize voice signals, compress them and turn them into packets for transport over the Internet.

The difference is that frame relay sends all packets sequentially over the network on the same route from beginning to end, whereas IP may route voice and other packets along different paths.

If the packets arrive out of order, they must be sorted in an instant so the listener doesn't notice annoying delays or missing packets. That is accomplished with gateway software.

Voice over IP is reliable enough for informal discussions with distant colleagues, but not for important conversations such as drafting a legal contract, according to Jensen and other users. "The main driver for this market is to save on international long distance," said Francois de Repentigny, an analyst at Frost & Sullivan, a consultancy in Mountain View, Calif. □

SHORTS

SBC makes long-distance acquisition

SBC Communications, Inc. will acquire Southern New England Telecommunications Corp. (SNET) for $4.4 billion in stock, the two companies said last week. SBC, in San Antonio, has more than $23 billion in annual revenue. SNET, in New Haven, Conn., has nearly $2 billion in annual revenue. SBC officials said they hope to benefit from SNET's long-distance experience while offering to the smaller company SBC's marketing expertise and financial resources. SBC recently won a federal court judgment making it easier for it and other regional Bell operating companies to enter the long-distance market. But the Federal Communications Commission and big long-distance carriers such as AT&T Corp. are fighting the decision.

NetWare antivirus

Symantec Corp. in Cupertino, Calif., recently introduced Norton AntiVirus for NetWare 4.0, which gives users more advanced virus repair and detection capabilities. It uses the Bloodhound-Macro technology to identify and eliminate macro viruses in Novell, Inc.'s NetWare. It uses Symantec's Striker technology to detect and eradicate polymorphic viruses. It is available now for $499 for one server and 10 clients. A free trial version is available at *www.symantec.com/trial/ware/index.html*.

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Weight	11.0 lbs.	11.5 lbs.	22.0 lbs.
Dimensions (wxhxd)	14.1" x 14.2" x 6.6"	14.1" x 14.3" x 6.7"	19.7" x 19" x 8.7"
Brightness	200 cd/m²	180 cd/m²	150 cd/m²
160° XtraView Technology	no	yes	yes

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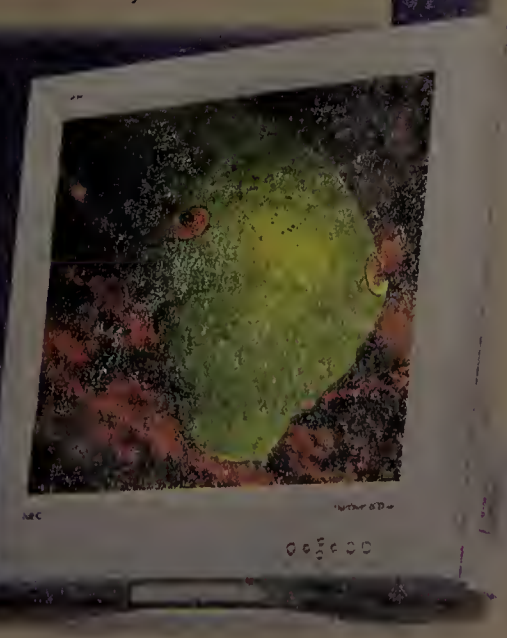

PC Computing ★★★★★ PC Computing ★★★★ PC Computing MultiSync LCD2000

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fig. 1

fig. 2

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Briefs

WHERE IT STANDS

Status of data warehouse rollouts

- In production
- Early implementation
- Late implementation
- Planning
- Second generation

Base: 50 Fortune 1,000 companies
Source: Forrester Research, Inc., Cambridge, Mass.

Red Brick upgrade

Red Brick Systems, Inc. in Los Gatos, Calif., announced that an upgrade of its namesake decision-support database is due within 30 days. Version 5.1 of the Red Brick Warehouse software adds optional technology that automates administration of the summary tables used to boost query performance in data warehouses.

Unidata middleware

Unidata, Inc., a Denver-based maker of specialized databases, announced middleware that links Java applications to relational software. The Java Relational Binding product automatically generates relational data structures for Java objects and includes native support for multiple databases. Developer licenses start at $2,000.

Data mining center

KPMG Peat Marwick LLP's consulting unit opened a facility for testing data mining technologies at Northern Arizona University in Flagstaff. Companies can use the Center for Data Insight to evaluate tools and build prototypes of data mining applications, KPMG said. Fourteen vendors are working with KPMG at the facility, including Oracle Corp., Sun Microsystems, Inc. and SAS Institute, Inc.

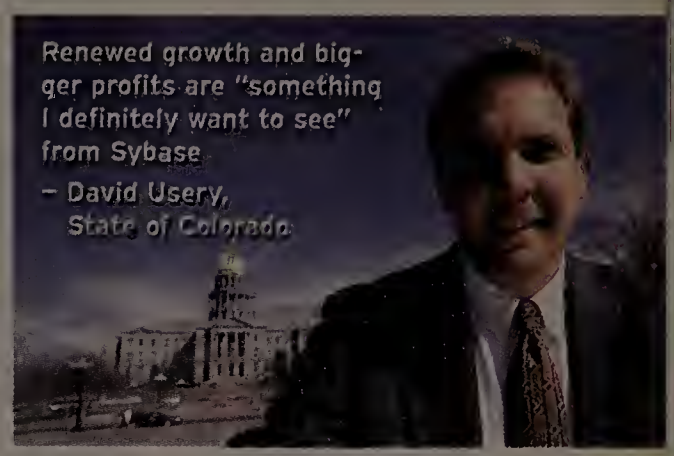
Poor financials trigger change at Sybase

By Craig Stedman

AFTER FAILING TO live up to predictions of renewed vigor last year, Sybase, Inc. is trying to regain the confidence of database buyers by overhauling its sales force and targeting a trio of application niches.

Sybase began implementing the changes last week, just days after disclosing that its fourth-quarter financial results will be well below expectations. Included is the formation of a sales team dedicated to finding new users — something that hasn't been easy for Sybase to do after a $79 million loss in 1996 and four straight quarters of declining revenue during 1997.

Even some users who have signed on with Sybase didn't do so with entirely glad hearts. For example, Private Healthcare Systems, Inc. "absolutely had our trepidations about Sybase," said Lisa Thompson, vice president of business systems at the Waltham, Mass., managed care services company.



The application that Private Healthcare wanted runs only on Sybase. The company might have chosen a different database "if we had another application vendor that came anywhere near as close functionality-wise," Thompson said. "But there weren't any [comparable] Oracle or Informix systems out there."

Sybase's failure to meet its rosy fourth-quarter outlook "is certainly disappointing," Thompson said. "We'll have to keep an eye on them." But weak results appear to be par for the course for database vendors right now, she added.

Indeed, the shortfall at Sybase is just the latest example of how the Big Three of the database world are struggling with a maturing market and the shift of user priorities to packaged applications [CW, Jan. 5].

Market kingpin Oracle Corp. in Redwood Shores, Calif., has managed only single-digit database growth in the past two quarters. And Informix Software, Inc. in Menlo Park, Calif., has lost money in three straight quarters and was forced to restate its revenue back to 1994.

Sybase hoped to get back on a growth path after shipping a bumper crop of new products last fall. But fourth-quarter revenue is now expected to be as much as 8% below plan, and officials at the Emeryville, Calif., company said it will either report a slim profit or a small loss.

Sybase CEO Mitchell Kertzman said the company is having "to swim upstream a little more than we thought we would" because of the general

Sybase, page 54

Monsanto plans to market its hard-won R/3 expertise

By Julia King

IT TOOK MONSANTO CORP. two and a half years to come up with the right technical architecture and another year on top of that to implement SAP AG's R/3 enterprise software.

Now, with the help of IBM, the giant St. Louis-based agricultural products and pharmaceuticals company plans to sell to other big companies what it has learned firsthand about R/3.

"The idea is to make money from the intellectual capital developed during the course of the project," said Gary Banks, an information technology project leader who has worked on Monsanto's SAP project since its inception.

But Monsanto has no intention of pursuing consulting as a strategic business. Instead, ex-

Monsanto, page 54

Highlights of the IBM/Monsanto technology alliance

- Creates a jointly owned Solution Center that will offer enterprise software integration services
- Transfers 150 Monsanto IS employees to IBM under a 10-year outsourcing deal
- Transfers data center management and help desk operations to IBM

SAP goes outside for sales force software

By Randy Weston

SAP AG IS tapping outside resources to expand the reach of its flagship R/3 system.

The German software leader bought a 50% stake in Kiefer & Veittinger GmbH (K&V), a Mannheim, Germany-based maker of sales force automation software, for an undisclosed price.

SAP announced this past summer that it was developing

SAP, page 54

KIEFER & VEITTINGER

Location: Mannheim, Germany, with U.S. headquarters in Waltham, Mass.

Founded: 1986

Products: SalesManager, ServiceManager

Customers: Approximately 250, including AT&T, Merck, Henkel and Braun

Vertical markets served: Consumer goods, pharmaceuticals, financials and industrial sector

REVIEW▶

Windows 98 is good, but iffy as an upgrade

By Chris DeVoney

THE THIRD BETA release of Microsoft Corp.'s Windows 98 operating system appears to fulfill the company's promise of easier installation, better performance, improved reliability and reduced cost of ownership.

With more key management features in place, the final release should be a suitable replacement for Windows 95 on new computers. But corporations still must decide whether it is a compelling upgrade from Windows 95 or Windows 3.1 on existing machines.

The answer depends on how Microsoft flushes out the numerous remaining details before the product ships in the second quarter.

Those bugs and design flaws, some of which are outlined here, seem minor, but they are potentially significant in some situations.

Windows 98 aggressively attacks ownership costs by self-

Windows 98, page 54

Monsanto to market its R/3 expertise

CONTINUED FROM PAGE 53

ecutives said, the new IBM/Monsanto Solution Center initially will offer specific expertise in four areas. They include designing and operating very large-scale SAP architectures using SAP's application link enabling technology, linking R/3 software with shop floor systems, integrating enterprise reference data and using Monsanto's configuration as a design template.

Monsanto has been using the R/3 system since April 1996. The company is rolling out the system to all of its business units worldwide.

The new center is one part of a larger, wide-ranging technology alliance between Monsanto and IBM. For the next 10 years, IBM will handle the day-to-day management of much of Monsanto's IT infrastructure.

Scientists from the two companies also will work together using information technology to map the genetic structure of major plant groups and human diseases. Neither company disclosed the value of the business relationship.

HOW THE CENTER WORKS

Eight Monsanto information systems employees and eight IBM employees — all R/3 veterans — will staff the St. Louis center, which will be headed by Bob Barrett, Monsanto's former SAP project manager, who is now an employee at IBM.

Barrett said the center will function as a workshop where customers can come and validate Monsanto's process models against their own business requirements. During the next three years, he said he expects the center to grow to a staff of about 50.

"We'll help clients with their technical architecture and data architecture, then they'll work with IBM in the field," Barrett said.

For IBM, the alliance with a user company of Monsanto's size and stature means "a ton of credibility," said Dan Colby, general manager of production and telecommunications industries at IBM Global Services.

"It's a way to differentiate ourselves in bid situations," Colby said. He added that customers will likely include very large companies in process industries, such as textiles and metals.

Bobby Cameron, an analyst at Forrester Research, Inc. in Cambridge, Mass., said the IBM/Monsanto alliance is in keeping with users' growing demand for predefined software. He said Monsanto's expertise will also play well in the marketplace.

"Users care quite a lot about what other users are doing," Cameron said. "If one user can turn to another user and see that their model is similar to their own, they're likely to consider it closely."

Colby said Monsanto will be paid a portion of the consulting fees that IBM charges clients who opt to adopt Monsanto's models. □

Win 98 good enough for new PCs

CONTINUED FROM PAGE 53

diagnosing and fixing many common problems. For example, the System File Checker verifies the integrity of Windows 98 files and restores any corrupted or changed files from the original Windows 98 distribution files.

But the System File Checker doesn't handle updated files. For example, a future application such as Word 99 will undoubtedly install several new Windows system files. If any of those files later become corrupt or are erased, the System File Checker would restore the original file, not the new versions that Word 99 would require.

Unless Microsoft provides a way to keep the System File Checker up to date, the utility could be more of a problem than a solution.

By setting the Windows 98 system policies, corporate managers can block the installation of any device driver not certified by Microsoft. They also can use the system policies to prevent a computer from accepting any software updates.

When you make a call for help, the Windows Report Tool and a configuration assistant can help support technicians and users troubleshoot the problem faster.

The latest release of Windows 98 also offers several memory- and disk-tuning wizards to automatically speed the loading and running of programs. For example, Adobe Systems, Inc.'s PhotoShop loads in three seconds with the wizard's help rather than the 12 seconds it normally takes under Windows 95.

With new Start-up and Batch features, the software is quicker to install than earlier versions. It displays only seven different screens and installs in about 40 minutes on a 266-MHz Pentium II PC.

EASIER DEPLOYMENT

For large deployments, Windows 98 is more easily "pulled" to the desktop than earlier versions. A new Setup program handles both individual and networked computers, can incorporate post-Windows 98 device drivers and isn't confused by networked distribution files, as was its predecessor.

And with a new distribution tool, to be available in the final release, corporations should be able to set up Windows 98 and other applications on a machine and then "clone" the installation to other computers.

But most corporations would rather push the upgrade to the desktop than have someone work on each machine to start the pull. Unfortunately, you still need a third-party package for that.

On the whole, Windows 98 has the makings of a compelling upgrade, but it requires widespread testing to round off its edges. □

DeVoney is a freelance writer in Seattle. He can be reached at chrisd@cybercritic.com.

PRODUCT REVIEW

▸ *Windows 98 beta*

MICROSOFT CORP.
Redmond, Wash.
www.microsoft.com

Release date: Second quarter of 1998

Price: Unavailable

Pros: Self-diagnosis feature can fix common problems; new hypertext troubleshooters; faster application loading.

Early bugs: System File Checker doesn't yet handle updated files; corporate rollouts still need third-party package to push Windows 98 to the desktop.

Poor financials trigger change at Sybase

CONTINUED FROM PAGE 53

sluggishness in the database business. But he also blamed the fourth-quarter showing on poor execution within Sybase's North American sales force.

Another sales change being made is a shift of sales support workers into active selling jobs, Kertzman said. And marketing is being focused on mobile computing, the Internet and data warehousing.

Renewed growth and bigger profits are "something I definitely want to see" from Sybase, said David Usery, chief information officer of a big criminal justice systems integration project for the state of Colorado. "I'd like them to be around so our technical direction gets supported."

"I thought Sybase had turned the corner and momentum was building," said Michael Heaney, database administrator at The Institute for Genomic Research in Rockville, Md. "But you have to consider what else is going on around the database world."

Sybase "isn't going away, and we're certainly not switching [vendors]," Heaney said. The institute, a nonprofit genetic research facility, began upgrading its database servers to Sybase's new Adaptive Server Enterprise 11.5 software two weeks ago. □

SAP goes outside for sales force automation software

CONTINUED FROM PAGE 53

customer management tools for R/3. By purchasing a stake in K&V, however, SAP is straying from its usual tactic of internally developing new functionality for its R/3 enterprise resource planning (ERP) system.

"They have done very little purchasing or partnering," said Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston. "SAP realizes that once it ventures out of its core ERP area, they don't have the staff who can support this stuff or do the value-added selling."

JOINING THE TREND

Most ERP vendors are developing sales force and customer service modules for their applications package. Netherlands-based vendor The Baan Co. bought Aurum Software, Inc. in April to gain such functionality. Oracle Corp. built the functionality itself and released it in November.

Though K&V isn't well-known in the U.S., it has an established customer base in Europe. Of its 250 customers, 40% have integrated the K&V system with R/3.

Under the agreement, K&V will keep its autonomy, but SAP and K&V developers will jointly create an integrated customer management and sales force automation module for R/3.

Richardson warned that U.S. users may want to comb through the K&V piece before making a decision.

"No one has ever heard of this company, so it's unclear what users get," he said. "U.S. users need to look for the richness of the functionality and how much of it is in English. When SAP first came to the U.S., a lot of help screens and other screens deep inside the software were still in German."

The module is expected to be ready in time for the release of R/3 Version 4.0, which is due this summer. □

Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

PICKING NOTEBOOKS

Most important factors when choosing a notebook computer:

Rated on a scale from 1 (least important) to 4 (most important)

Cost	3.6
Memory capacity	3.5
Brand	3.5
Processor speed	3.4
Design	3.2
Battery life	2.9
Color screen	2.9
Weight	2.7
Recommendations	2.1

Base: 300 notebook PC users

Source: The Yankee Group, Boston

Unisys ends hardware

Unisys Corp. officials last week said the company will discontinue its PC and low-end server businesses and outsource the manufacturing of those products.

Lawrence Weinbach, chairman, president and CEO of Unisys, said the company will focus instead on its services and enterprise server businesses.

Unisys, in Blue Bell, Pa., also will take a onetime quarterly charge of $1.1 billion, largely related to write-offs from its 1986 merger with Sperry Corp. and Burroughs Corp., company officials said.

Virtual tape reports

InfoTel Corp. in Tampa Bay, Fla., has added support for virtual tape systems to its Infotape mainframe tape-reporting software.

Virtual tape systems are different from traditional tape systems because they use disk arrays to cache and then efficiently fill cartridges.

The new reporting features, which are available now, give storage managers a view of virtual tape use, wear and tear and performance, according to company officials.

Giving Unix an NT spin

▸ *New Sun workstation line is priced to compete*

By Jaikumar Vijayan

TWO OF THE BIGGEST strikes against Unix workstations compared with Wintel boxes have been their higher cost and their kludginess in running mainstream office productivity applications.

Sun Microsystems, Inc. this week plans to unveil a line of systems that address those issues.

Sun, in Palo Alto, Calif., is releasing a low-cost line of Unix workstations priced for the first time to compete with Windows NT-based PC workstations from vendors such as Compaq Computer Corp. and Dell Computer Corp. Sun's new Darwin family features its latest 270- and 300-MHz UltraSPARC II chip and supports up to 512M bytes of memory.

The systems also include between 4G and 8G bytes of disk space, integrated networking and three-dimensional graphics capabilities. A low-end version of the Darwin systems starts at less than $5,000, and a higher-end model will sell for less than $10,000.

Sun's Darwin Ultra 5 workstation

- Processor: 270-MHz UltraSPARC II
- RAM: Up to 512M bytes
- Storage: 4G bytes
- PCI slots: Three
- Networking: 10/100Base-T
- Graphics: 8-bit integrated
- Cost: Less than $5,000

WORTHY COMPETITOR

"Dollar for dollar, [Sun now has] a machine that will compete with any good NT workstation out there. That doesn't leave a whole lot of reason for some users to want to change to NT anymore," said Rex Hays, a design engineer in the advanced product development group at Eastman Kodak Co. in Rochester, N.Y.

UNIX WORKSTATIONS

The systems also will come with software that will let users integrate PC networks with Sun's Solaris networks, share file and print services between the two environments and share PC and Solaris applications on the same screen.

Such capabilities are aimed at reducing some of the hassles of integrating Unix workstations with PC networks.

The features also were designed to make it easier for users to run PC applications on Unix systems.

To keep prices down, Sun is outsourcing manufacturing of the product line to an unspecified Taiwanese PC maker, which will build the systems using standard PC cabinetry and components.

The systems might not be Windows NT killers, "but [they are] likely to slow down people on the fence who like Unix but want the low cost of NT," said Bob Sakakeeny, an analyst at Aberdeen Group, Inc., a research firm in Boston. "If you have a decent hardware package and provide relatively easy access to personal productivity tools, there is less reason for [Unix users] to switch to NT."

Sun, page 56

Pentium II price cut may spark user rush

By April Jacobs

OBSERVERS SAY Intel Corp.'s announcement that it will cut prices for its 233-MHz Pentium II chip by 33% could make that latest processor offering more attractive to corporate users.

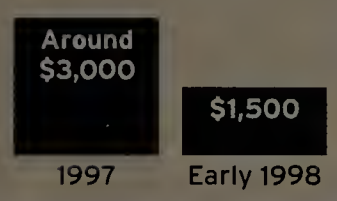
Since its introduction last summer, the Pentium II has been a popular choice for companies where number crunching is essential to the corporate bottom line — for example, banks and financial firms.

Dataquest in San Jose, Calif., estimates that 1.6 million systems with Pentium II chips were shipped in the U.S. in 1997, but it expects that number to grow to 13 million in

Price cut, page 56

PRICE DROP

Intel's price cuts will lead to cheaper Pentium II-based PCs, analysts predict



Snapshot

GADGET GUIDE

	Organizer	Handheld computer	Ultraportable
Cost	$100 to $400	$500 to $1,000	$750 to $2,500
Products	3Com PalmPilot (pictured), Casio DC and TL series, Franklin Rex, Psion Sienna, Sharp SE-500 and Texas Instruments Avigo	Casio Cassiopeia (pictured), Compaq PC Companion, HP-360LX, LG Phenom, Apple MessagePad 2000, NEC Mobile Pro 700, Philips Velo 500, Psion Series 5, Sharp Mobilon	Hitachi VisionBook Traveler (pictured), Mitsubishi Amity CN, NEC Mobio NX, Sony PDG-505 and Toshiba Libretto 70CT
Use	Personal information managers, which weigh less than a pound, can synchronize with computers. The PalmPilot is evolving as a major platform for developers. 3Com shipped 1.4 million units in the first half of 1997, compared with 1.6 million during all of 1996. Of all 1997 handheld PCs sold last year, 66% were PalmPilots.	E-mail capabilities, personal information management and limited word processing. Companion to a notebook. Windows CE devices run a light version of Windows 95. Of all handheld PCs sold last year, 20% were CE devices.	Replaces notebook. A 2- to 3-pound handheld device with a hard drive that runs Windows 95 with a 75- to 133-MHz Pentium processor and 8- to 10-in. screen.

Source: The Yankee Group, Boston, and Dataquest, San Jose, Calif.

Price cut may spark rush on Pentium chips

CONTINUED FROM PAGE 55

1998, said Erin Collier, an analyst at the research firm.

With most Pentium II-class machines costing about $3,000 this past year from vendors such as Round Rock, Texas-based Dell Computer Corp., IBM and Houston-based Compaq Computer Corp., users said they were waiting for prices to drop before adding the machines to their lineup in volume.

Collier said she expects vendors will offer this month Pentium II-based PCs for about $1,500 — a drop of 50%.

"I have in mind how much I can spend when I buy a PC, so a drop in prices allows me to spend the same amount of money to get a better class of machine," said Larry Garden, manager of technical operations at Brewers Retail, Inc. in Mississauga, Ontario.

Brewers Retail was buying Pentium-based machines with MMX technology but recently bought its first round of Pentium II machines, Garden said.

The company will continue to order Pentium II-based machines as older PCs are retired now that prices have dropped, he said.

Other users said they will purchase higher-end machines for those who need them, but only where the technology can make a difference — such as for users who run financial or other applications that require powerful processing.

STILL FOR THE HIGH END

And although the Pentium II price reduction will no doubt make it an easier buy, it is still a workstation-class machine designed for higher-end users, explained John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

"The Pentium II is still not for entry-level systems like those used for word processing mostly," Dunkle said.

Intel said it will begin to drop the prices on its other Pentium II processors later this month. Those chips feature speeds of up to 333 MHz. □

Intel may be left with overstock

Intel, which is expected to slash processor prices later this month, may be left with a glut of unsold chips due to sluggish notebook orders during the past quarter.

But more notebooks may be sold after Jan. 25, when the price of the 266-MHz processor is expected to drop from $500 to $375, and the 233-MHz processor will be reduced from $375 to $250. The price of the 200- and 166-MHz processor prices will drop to $115 and $90, respectively.

One analyst said users should expect price cuts soon as notebook makers move to shed inventory.

"It's not not a bonanza time, but clearly prices are coming down way ahead of what OEMs desire," said Ashok Kumar, an analyst at Loewenbaum & Co. in Austin, Texas.

Kumar said Intel has a mix of about 3 million unsold processors in inventory.

International Data Corp. in Framingham, Mass., estimates that notebook sales will be off about 5% in the fourth quarter mostly due to poor sales in Japan. Analysts also noted that many U.S. user companies upgraded their notebook computers in the first half of 1997 and are bypassing newer machines, waiting instead for Windows NT 5.0 and Pentium II-equipped notebooks [CW, Dec. 22, 1997].

— Kim Girard

Sun guns for Wintel

CONTINUED FROM PAGE 55

"The price/performance of these systems is very appealing to me," said Ron Kikinis, director of the surgical planning laboratory of the radiology department at Brigham and Women's Hospital in Boston. The department will replace several older Sun workstations with the new ones.

Kikinis said the department has no immediate plans to move to Windows NT because its current price/performance requirements are being met by Sun's newest systems. "A lot of our applications are very graphics intensive, and Windows NT doesn't have the stability or scalability yet" to handle them, he said.

Sun's latest move comes at a particularly trying time for Unix workstation vendors. During the past year, a growing tide of low-cost Wintel boxes has rapidly eroded their market share. Most major Unix workstation vendors, including Hewlett-Packard Co. and Digital Equipment Corp., have responded by long ago moving their product lines to Windows NT at the low and midrange while focusing on Unix only at the high end.

Until recently, Sun and Silicon Graphics, Inc. were the only major vendors not to offer Windows NT-based workstations. But last November, SGI succumbed to the pressure and said it will deliver NT workstations in the second half of 1998. □

IBM, Compaq PCs now equipped with K6

By Rebecca Sykes

IBM AND COMPAQ Computer Corp. last week announced desktop and notebook computers that are based on Advanced Micro Devices, Inc.'s (AMD) K6 processor.

IBM introduced two new models in its line of Aptiva home PCs, both of which are powered by IBM K6 MMX-enhanced processors, according to the company.

The Aptiva E26 runs at 233 MHz and costs $1,099. The Aptiva E46 runs at 266 MHz, and pricing starts at $1,599, according to the company. Both models ship with a K56flex modem. The E26 is available now, and the E46 will ship in the first quarter, IBM said.

Compaq's new systems include desktops and notebooks in its Presario line.

The Houston-based company has added the Presario 2240 to its Presario 2200 series. According to a statement from Compaq, the Presario 2240 features a 200-MHz AMD K6 MMX-enhanced processor, 32M bytes of memory, a 2.1G-byte hard drive and a 14-in. monitor. It costs $999.

PENTIUM-BASED MACHINES

Compaq also introduced the Presario 4600 series, which features machines running 266- or 300-MHz Intel Pentium II processors, according to the company.

The models range in price from $1,799 to $1,999 without a monitor.

Another new line, the Presario 4800 series, also uses a Pentium II processor and was designed to offer three-dimensional graphics, video, audio and videophone capability. The company said these models will be available shortly and will start at $2,399.

On the notebook front, Compaq announced the Presario 1200 series, which features a 200-MHz Media GX MMX-enhanced processor, 32M bytes of RAM, a 2.1G-byte hard drive and 128-bit graphics acceleration. The 1200 series is priced beginning at $1,999, the company said.

Also new to the notebook arena is Compaq's 1600 series, with a 233-MHz MMX-enhanced processor with Compaq's DisqPlay feature, which was designed to let users listen to audio CDs without powering up the PC.

One model in the line will ship at the end of the month. Pricing for the line ranges from $2,499 to $2,999. □

Sykes writes for the IDG News Service in Boston.

NEW PRODUCTS

SHERWOOD NETWORK DIVISION has announced the Sherwood Passport network computer.

According to the Hayward, Calif., company, the system was designed for multiuser environments. It can be connected to an IBM, Microsoft Corp., Novell, Inc. or Unix host server over a network through a built-in Ethernet port or an RS-232 serial port. Options include a 233-MHz Pentium processor, 256M bytes of RAM, an audio port and 4M bytes of video RAM (VRAM).

Pricing for a standard system with 16M bytes of RAM and 1M byte of VRAM is $800.

Sherwood Network Division
(510) 266-5600
www.sherwoodterm.com

PROCOM TECHNOLOGY, INC. in Irvine, Calif., has announced the ATOM4000 Series 4G-byte hard drive for notebook computers.

According to the company, the hard drive is 12.7 mm thick, so it will work as an upgrade in smaller laptops and notebooks.

It costs $985.

Procom Technology
(714) 852-1000
www.procom.com

SUPERMICRO has announced a family of five Pentium II motherboards: the Super P6SLA, the P6SLS, the P6DLF, the P6DLS and the P6DLH.

According to the San Jose, Calif., company, the motherboards are based on Intel Corp.'s new 440LX chip set. They support the accelerated graphics port specification for improved performance with three-dimensional graphics and other visually intensive applications.

The P6SLA and the P6SLS each have one processor. The P6DLF, P6DLS and P6DLH models each have two processors. Pricing ranges from $300 to $480.

Supermicro
(408) 895-2000
www.supermicro.com

HITACHI PC CORP. has announced VisionDesk LCD, a desktop computer with a 13.3-in. LCD panel.

According to the San Jose, Calif., company, the system's flat-panel display provides 1024-by-768 resolution. It includes a 233-MHz Pentium processor, a 4.3G-byte hard drive and a 20-speed CD-ROM drive.

An onboard 10/100Base-T LAN adapter and a built-in 56K bit/sec. modem help users plug in to networks without having to adjust settings and drivers.

It costs $3,299.

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TravelMate 7100 (233MHz)	8:25
IBM ThinkPad 760ED (133MHz)	2:38
Toshiba Tecra 720 CDT (133MHz)	2:38
Dell Latitude Xpi (150MHz)	4:15

MMX intel inside pentium® PROCESSOR

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TEXAS INSTRUMENTS®*

Managing

How'm I Doin'?

JAMES KRAUS

If you want to lift your staff to new heights, effective feedback is crucial – and not just at review time. Let your staffers know where they stand

By Kathleen Melymuka

That haunted look in the eyes of IS managers this time of year is the residue from the latest excruciating round of annual performance reviews. Feedback never appears on those Top 10 lists of critical issues for information systems. Managers who have risen from the technical ranks often lack the knack of providing feedback gracefully. As a result, they think of it as a necessary evil, or they don't think about it at all. Even confident IS managers often face institutional barriers to good feedback. At companies with extensive project work, for example, you may be the administrative manager of a dozen people you rarely see, but be expected to give each one feedback on his performance.

Despite the difficulty of giving feedback, effective leaders understand that they need to let the troops know how they're doing — all year long. Without this information, employees are in the dark, unable to get their bearings and unable to improve. Feedback isn't only the yearly review, it's also a vehicle for showing respect and recognition on a regular basis, says consultant Naomi Karten, a former IS manager. Effective feedback balances good news and bad, and it comes packaged in a way that is easy to accept and act on. Best of all, Karten says, you don't have to be a "people person" to do it.

Here are 15 tips from IS managers and others on ways to let people know how they're doing.

1 Accentuate the positive

"Many IS managers are still figuratively spanking their staffs," says Tom Pawlack, global practice leader for performance management at Towers Perrin, a New York-based human resources consulting firm. "The older ones are school of engineering rather than school of management, so you've got the engineering management style."

This is only a short hop from the *Jurassic Park* school of management, characterized by too much negative, and not enough positive, feedback. "People end up thinking, 'If they're not yelling at me, I must be doing a good job,' " he says. "But you get more mileage out of reinforcing what people are doing right."

When you have to be critical, package your message so people can be receptive, says Karten, president of Karten Associates, a Randolph, Mass., consulting firm that specializes in customer service. Put a positive twist on it: Here's something that needs attention. Here's an opportunity for improvement.

2 Establish trust

Trust is the foundation of good feedback. "When people get feedback, they need to trust that they won't be branded for life; otherwise they will get defensive and deny it," says Michelle Benvenga, vice president of applications development at USF&G Insurance in Baltimore. "They also have to feel comfortable about giving feedback without fear of repercussions. When I give feedback, I know they feel vulnerable just by their position, so I try to increase my vulnerability by giving examples of times when I had the same or similar difficulties. I will give examples of what I had done, some feedback I had received, the ways I tried to change and the results I had."

3 Make an example

IS staff who are used to tyrannical managers will blossom under a kinder, gentler regime. Try to catch them doing something right and find ways to give public recognition, says Madeline Weiss, president of Weiss Associates, Inc., a management and human relations consultancy in Bethesda, Md. That sends a clear message about what's rewarded. It also builds somebody's reputation, and that's the best reward. On the other hand, when you need to correct someone, always do it privately.

4 Use customers and peers

"I believe that the feedback that has the most positive and/or motivational influence comes from your customers or your peers," says Theresa Sapp, senior vice president for distribution automation at CNA Commercial Insurance in Chicago. "Use of these two groups can be very powerful for both building morale and motivating a less-than-inspired IS person or staff."

Sapp initiated a monthly Excellence-in-Action award controlled by the staff to reward people who go out of their way to make a significant contribution to the team or a customer. Recipients may win a prize such as a car wash given by a company executive. "We have found this to be a simple, yet powerful, tool for giving positive feedback and building the team," she says. She also asks high-ranking internal customers to write a note, call or visit individuals regarding their performance.

Weiss suggests using peers in more formal performance reviews as well. "When I'm sitting eyeball-to-eyeball with my colleagues, and eight people are saying the same thing, I can't blow it off," she says. Furthermore, peers can be much more specific. Whereas a manager might say, "You're not communicating as well as you should," a peer can say, "You're not copying me on the project updates."

5 Strike a balance

Positive feedback reinforces the positive, Pawlack says. But if you neglect negative feedback, you reinforce the negative. "If it's not balanced, people are not growing," he says.

6 Be flexible

Tailor your feedback to your staff's timetables and preferences. "When you're delivering something about every 90 days, quarterly reviews don't make much sense," says Bruce Ferland, senior vice president for retail electronic commerce at Fidelity Investments in Boston. "Here we work in Web years, which are 90 days or less." He also finds that his people are more comfortable with electronic-mail messages than with face-to-face feedback, so his open-door policy has become an open mailbox.

7 Cut out the middleman

"It's important to have feedback come from the person who observed you," Benvenga says. If you are a person's day-to-day manager or project manager, you should provide daily feedback, even though an administrative manager may be responsible for the review process.

8 Timing is everything

Don't procrastinate, hoping someone else will tell them. They won't. "I don't believe in blindsiding people," says Rina Delmonico, vice president and chief information officer at Scott Sports Group/Schwinn Bicycling and Fitness in Boulder, Colo. "At the time it happens, you tell them right then. IS management is like handling your kid: You have to be honest, blunt, straightforward and fair."

9 Be specific

Avoid such labels as, "You're lazy." Be descriptive: "You come to meetings late and don't turn things in on time." Be specific about what you want people to change, Pawlack says.

The more vivid and more specific, the more likely people are to take steps to change.

But keep it within bounds. "Anything that they need a pharmaceutical to change, you shouldn't be dealing with," he says.

10 Get away from it all

Occasionally take the team off-site for an intensive give-and-take on how everyone is doing, Ferland says. Finish with action plans for improvement, then follow up. The last time Ferland did that, employee feedback resulted in "meeting-free Fridays" that enabled IS people to work uninterrupted, get their jobs done and go home for the weekend. Management feedback resulted in more structured meetings that help everyone accomplish more work in less time.

11 Stay on "the job"

The more job-related the feedback, the more acceptable it is to the individual, Pawlack says. "When you're late with your code, it throws my testing schedule off. Can you give me a heads-up when you think you're getting into trouble?" is job-related. "I have to work with you, so why don't you brush your teeth?" is a no-no.

12 Observe, don't accuse

Don't say, "Why did you do that?" says Eileen Strider, a former CIO and now principal at Strider & Cline, a Kansas City, Mo., management consulting firm. It sounds accusatory, puts people on the defensive and is ultimately unproductive. Before you blame, get the facts and intentions sorted out, she says. Say, "This is what I saw. This is what I heard. This is the meaning I drew from it. And this is how it makes me feel." Then let the person explain whether your perceptions matched his intentions. Frequently they don't, and you'll snuff out a misunderstanding.

13 Don't leave 'em bleeding

Don't just criticize; suggest ways to improve. "People look to the leader to not just cut them open and leave them on the operating table but to say, 'Now that I have your attention, how do we make you stronger, better, more proficient, more productive?' " Pawlack says. "I always finish up a conversation by expressing confidence in them that they can do it," Benvenga adds.

14 Mentors take the sting out

At First Data Corp. in Omaha, senior coders who have gone through an immersion program in object orientation practice object-oriented coding all week, then go over their code with peer mentors on Friday. "They sit there and watch what they've done over four days get redone in an hour and a half," says Hank Weiland, vice president of architectural development.

15 Humor helps

When she was a CIO, Strider had a manager who would let his sentences run on until they became incomprehensible. Once, under a verbal barrage, she held up a piece of paper that contained nothing but a single dot. "What's that?" he asked. "A period," she responded.

Ever since, he's been offering "the 30-second version." □

Melymuka is Computerworld*'s senior editor, management.*

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For more ideas on how to give your staff better feedback, log on to *www.computerworld.com* and listen to former IS manager Naomi Karten address the issue in an interview with Rick Saia, associate editor of Managing.

MS.MIS
WOMEN IN INFORMATION SYSTEMS

OVER the HILL?

They're ready and willing to work. But for IS women over 50, the road back to the workplace is dotted with barriers

BY LAURA DIDIO

They're over 50, skilled, willing to work and nowhere near ready for retirement.

But older female IS managers are finding themselves shuffled aside, downsized and out of a job. And older women who want to return to the workplace to ply their Cobol skills on a year 2000 project are running into obstacles.

U.S. Census Bureau figures show that as of August 1997, the unemployment rate for all U.S. workers over age 55 fell to 3%, from 5.5% in 1992. But the unemployment rate for those over 50 in the computer industry and corporate IS is about 17%.

Here's the biggest irony of all: To solve year 2000 issues, companies must rely on workers who are skilled in the granddaddy of programming languages: Cobol. Who knows Cobol? Seniors.

"Someone turns 50 every 7-1/2 seconds in the U.S.," notes Bill Payson, founder of Senior Staff 2000, a 5-year-old organization that helps retrain older computer programmers and IS managers to address the year 2000 issue. Payson, 73, says the time is ripe for a group such as his. About 7,000 people — 30% of whom are women — so far have listed themselves in the Senior Staff 2000 database.

"If women over 50 were being hired, we'd be the first to know. But it's just not happening. And it's a damn shame," Payson says.

"A disproportionately high number of the early programmers were women," Payson says. He says the Silicon Valley database he runs receives more job requests for women than men. But there's a catch. "In Silicon Valley, the primary job requests for women are secretarial and administrative positions. In spite of the fact that we have numerous highly qualified women in our [year 2000] database, we haven't placed one in a job. IS organizations aren't looking for women over 50," Payson explains.

Although seniors of both sexes have it tough, women say they have to contend with the double handicap of ageism and gender bias. This despite the fact that Payson says all the over-50 women in Senior Staff 2000's database are excellent workers.

That's what "Audrey," a 63-year-old IS manager at a large Northern California firm, found out when she got laid off last year. "My 20 years of Cobol programming and mainframe management experience didn't mean a lot when we were downsizing," says Audrey, who requested anonymity. "It's especially difficult here in California, where they worship youthful women." Audrey was unemployed for 13 months before being hired by another firm. "Things went wonderfully during phone interviews, but when I showed up, you could clearly see the disappointment that I was over 60. Invariably, I got the 'Don't call us, we'll call you' routine." Audrey finally landed a job — as an entry-level network administrator and at a 40% pay cut. She's still circulating her resume and plans to refresh her Cobol skills.

Bonnie Jo Buck listed herself after she lost her job as IS director at a travel services firm. She was 58 and six months shy of being fully vested in the company's pension plan. She suspects she was terminated because of her age and gender, though she can't prove it. "I was the only woman at the director level in the IS department, and I was on the job for four-and-a-half years," Buck recalls.

It took Buck a year to find another job despite her two master's degrees, a specialist degree in educational administration, a doctorate in computer-based training/artificial intelligence and five years of Cobol programming and systems analyst duties with the Apollo space program.

Buck is now an IS trainer and curriculum specialist at Tele-Media, Inc., a military contractor in Orlando, Fla.

In yet another irony, Buck's age may have helped her land her current post. "The man doing the hiring was 75; it's debatable whether I would have been hired by a 35-year-old," she says.

Buck is now trying to help other older, qualified female IS managers re-enter the workforce. She's working with the University of California Santa Cruz (UCSC) Extension training program to retrain Florida-based Cobol programmers. "We have to make our own breaks," she says.

Senior Staff 2000 also has partnered with the University of California to devise courses that help older IS managers and programmers refresh their Cobol skills for the year 2000. Though the first class of 27 includes just seven women, "it's going very well," reports Jocelyn Zimardi, communications manager at the UCSC Extension program. UCSC hopes to draw more women into the program in the future. □

DiDio is Computerworld*'s senior editor, LANs and operating systems.*

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Laura DiDio will host a forum this week on the issues presented in this column. To find out more, visit our Web site at: *www.computerworld.com.*

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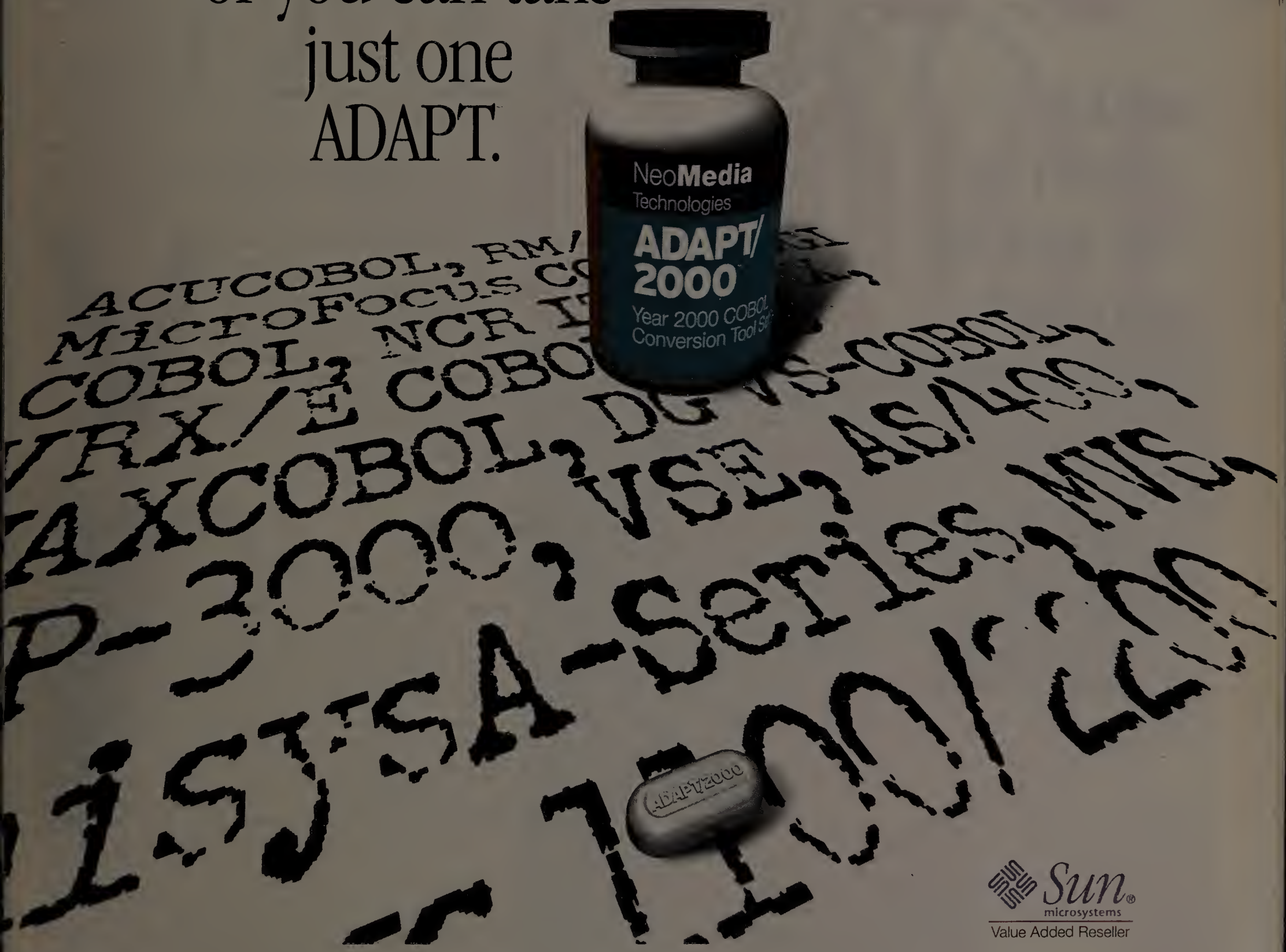

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HEAD COUNT IS NO WAY TO MEASURE HOW GOOD YOU ARE

PAUL STRASSMANN

We shouldn't give Industrial Age answers to Information Age questions. Yet, that's still happening in the debates over whether computers have increased productivity.

Revenue per employee is still being used to measure the productivity of information resources. The most notable recent example is the publicity given to a Harvard Business School study. The study is an example of how misleading measures lead to deceptive findings.

THE STUDY

The Harvard researchers studied 250 life insurance companies. They were searching for a relation between cuts in employment and gains in productivity.

Researchers chose insurance companies because they spend a higher share of operating expenses on computers than most economic sectors do. The findings were surprising. It was the firms' approach to downsizing — and not IT — that made the difference in productivity. It was not technology, but the behavioral and organizational characteristics that mattered.

The implications of those findings are readily apparent: It's not what you do, but how you do it that delivers the results. Unfortunately, the problem with these conclusions is that they all hinge on productivity as defined in terms of revenue per employee. That measure is unreliable. Therefore, although I agree with some of the observations, the research conclusions aren't trustworthy. Here are the reasons:

1. Head count doesn't account for the cost of doing business in insurance. The average salaries in insurance firms vary greatly, and therefore, every head is not equal. The total cost of operations must cover payroll expenses, as well as computers (up to 30% of payroll dollars), telecommunications, purchased services, office facilities, outsourcing fees and capital charges.

2. The Harvard study used life insurance premiums as the measure of output. But insurance companies have diversified and have other revenue streams besides premium income. These include fees such as custodial charges and income from investments.

3. If output (defined as premium income) and input (defined as head count) aren't reliable measures, then productivity (the ratio of output over input) won't be reliable. Revenue per employee wouldn't relate to any claims of productivity gains, particularly regarding IT, since technology use affects operating costs as well as profit margins.

For those reasons, it is necessary to abandon the revenue/head count ratios not only in the insurance industry, but also in other business sectors. This generalization is particularly relevant when making claims about productivity gains from using IT to downsize the workforce. A firm that outsources because of poor financial performance could look unrealistically efficient by claiming that this measure proves how well it's performing.

WHY HEAD COUNT-BASED MEASURES ARE WRONG

Comparing head count to judge how IT boosts productivity is just wrong. In the information economy, unlike the industrial era, it's not head count control that makes the difference in productivity. It's the total cost and value of information, whether owned or purchased, which explains the performance of an information-rich enterprise. I'm sensitive to this distinction because in my years as a CIO in business and government, I witnessed the enormous damage done by thoughtless and arbitrary hiring freezes, forced "retirements" and "downsizing." Head count ratio methods gave central planners a blunt and crude hatchet when thoughtful ways to boost the effectiveness of individuals could have delivered the identical results with less pain — and at a lower cost.

CIO IMPLICATIONS

Real incomes can rise only if there are real gains in productivity. The U.S. insurance industry, one of the most extensively computerized sectors of the economy, has shown only minimal gains in the past decade.

Using statements filed with the Securities and Exchange Commission, I analyzed 34 insurers whose financial records stretched back to 1987. Nineteen added to their employment rolls in a 10-year period, while 15 downsized. I calculated the actual productivity numbers as a ratio of revenues from all sources, divided by the total operating costs. For those adding employees, the productivity improvement was 5.2% in 10 years. For those downsizing, the improvement was 6%.

Those numbers amount to average annual gains of only 0.5% — a poor showing when one considers that during the past century, the entire U.S. economy delivered average annual productivity gains of more than 2.5%. There was little difference between the productivity gains of those upsizing vs. those downsizing.

Whatever gains in profits shareholders accrued in the past decade are rooted in the steady decline in the costs of capital as interest rates deflated. The gains didn't come from improved workforce productivity, regardless of how many computers were installed.

When the steady decline in interest rates finally reverses, as has always happened before, improved profits will have to depend on productivity gains. CIOs should adopt realistic measures to track such improvements.

Their expectations deserve better counsel than that offered by the Harvard Business School researchers. □

Strassmann (www.strassmann.com) says knowledge capital is not enhanced by cutting off heads.

Clock ticks louder in Europe

If you're worried that your company won't be ready for next year's launch of the euro currency, you aren't alone. There is plenty of concern on the other side of the ocean, too.

A recent survey of information technology managers and finance directors across Europe found they're less confident of having their systems ready for the first phase of the euro's debut — Jan. 1, 1999 — than they are of meeting their year 2000 deadline. (The euro won't become the only legal currency in European Monetary Union countries until 2002.)

The survey of 792 IT managers and 254 finance chiefs was sponsored by Viasoft, Inc., a Phoenix-based IT services provider. The results also found a lack of awareness of the size, complexity and business impact of the euro. Among the findings:

- Levels of confidence in meeting the deadline vary among countries — from 50% in the United Kingdom to 90% in Germany.
- Nearly 60% of respondents don't know how much code will be affected by the addition of the euro.
- 40% to 50% of respondents said they hadn't given any thought to the impact of suppliers' and customers' euro compliance.

The results are alarming considering that 91% of Europe's largest companies say IT is the area of their businesses that will face the largest conversion costs for the euro, according to a survey conducted for KPMG Management Consulting.

Despite the fact that the companies anticipate positive long-term effects with the single currency, "respondents continue to demonstrate low levels of readiness," says Alan Reid, chairman of KPMG Management Consulting.

Review Center

Computerworld readers pick the products that return value

IT Leaders' CHOICE

BY KEVIN BURDEN

VALUE. There's really only one way to measure it when you talk about computer products. You don't need editors debating features and functions. You don't need vendors trumpeting myriad market share figures. You go to the people who pay the price tag, the people who work with technology day after day. Only they know what value a product returns to them and their company.

When *Computerworld* set out to identify the most valuable products in the computer industry — listed in these next five pages — we knew the selections had to come from users. In a survey mailed to 5,000 *Computerworld* subscribers, we asked readers to evaluate products they installed or upgraded in 1997 by rating the level of value they got from each one. Those delivering the greatest value won *Computerworld*'s first annual IT Leaders' Choice Awards for value.

The survey covered 16 major hardware and software categories. When the votes were in, two names — Dell Computer Corp. and Hewlett-Packard Co. — rose to the surface. Of the 16 products that scored high enough to be declared winners, four are from Dell and three from HP. In Dell's case, users tended to praise it for price, performance

IT Leaders' Choice, page 64

THE WINNERS

Browsers
- Netscape's Navigator

Office Suites
- Microsoft's Office

PC/LAN Utilities
- McAfee's VirusScan
- Symantec's Norton Utilities

Open Systems DBMS
- IBM's DB2

Network and Systems Management
- HP's OpenView

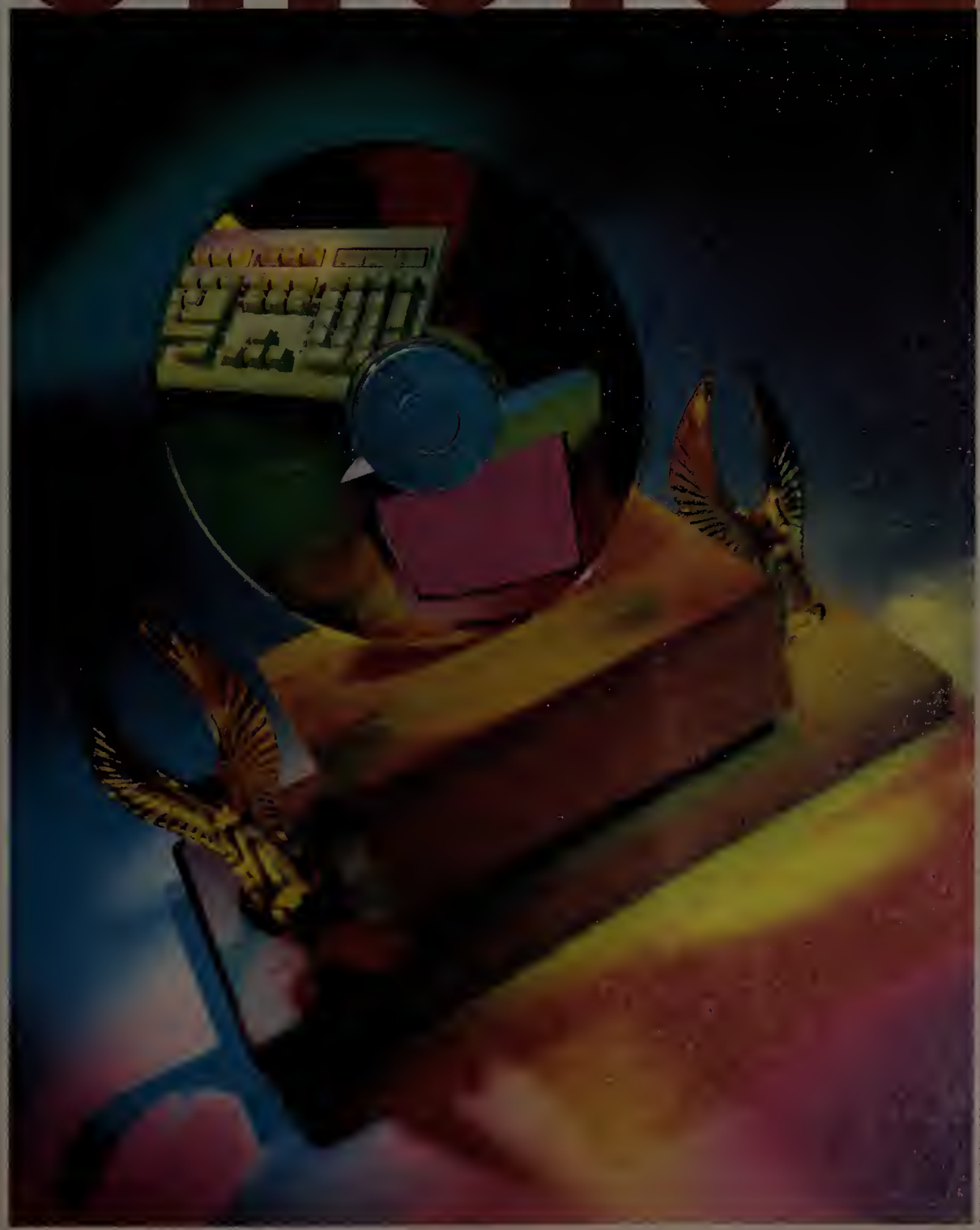
Application Development Tools
- Borland's Delphi

Enterprise Servers
- Compaq's ProLiant
- HP's HP 9000
- IBM's AS/400

Workgroup Servers
- Dell's PowerEdge
- HP's NetServer

Desktop PCs
- Micron's Millennia
- Dell's Optiplex
- Dell's Dimension

Notebook PCs
- Dell's Latitude



PAUL ARES PHOTOGRAPHY; CHRIS MCCORMACK/DIGITAL MAGIC

IT Leaders' CHOICE

CONTINUED FROM PAGE 63

and reliability. Take those same themes, add a lot of comments about service and support, and you get a good picture of what HP users like.

Most of the winners showed up in the hardware sector. While hardware tends to score well in most customer satisfaction surveys, it's worth noting that these respondents went a step further, saying hardware returns bottom-line value to their companies.

But in some software categories, we discovered that none of the products meets the standard of high value. Some hardware categories had more than one winning product, but some categories, such as World Wide Web development tools, had no winners. That's most likely because of users' continued lack of experience with those products, according to Robert Tasker, senior vice president at The Yankee Group, a consultancy in Boston.

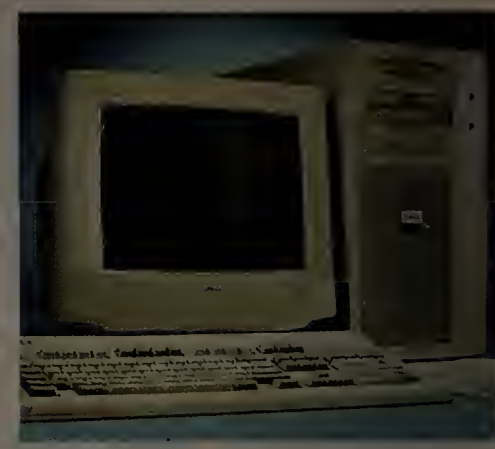
"People today are doing a real good job of delivering hardware. Hardware today is rock-solid, while software remains in a state of flux," he says.

The grading system was simple. On a scale of 1-to-5, 5 indicates that a product is returning exceptional value to the user's company, and 1 is basic value. To be declared a winner, products needed to earn what statistically amounted to a score of 4.0 or higher, while being mentioned by at least 5% of all respondents, or 43.

We chose 3.8 as a cutoff among raw scores after applying a standard error of difference of 0.2 that could arguably raise such scores to 4.0. Honorable mentions went to products scoring between 3.75 and 3.79. Unsung hero honors went to products that received perfect "exceptional value" (5.0) ratings from 25% of the products' users.□

Compaq's ProLiant

IBM's AS/400



Dell's PowerEdge

ENTERPRISE SERVERS

Compaq Computer Corp.
Houston
ProLiant
www.compaq.com

Compaq's ProLiant servers "are great pieces of hardware. They configure easily, scale beyond our demands and haven't gone down yet," says Philip Reiter, an analyst at PacifiCorp in Salt Lake City. Reliability is arguably the most valuable trait for servers and is the reason the ProLiant won the Leaders' Choice Award.

Compaq pitches the ProLiant family as high-availability file servers and World Wide Web servers. The products range from the ProLiant 800 with dual 180-MHz Pentium Pro processors to the ProLiant 7000, with up to four 200-MHz processors. Last year, Compaq enhanced the line with new clustering, symmetrical multiprocessing and Fibre Channel high-capacity storage technology. The company also introduced three ProLiant servers that feature Highly Parallel Systems Architecture, a new standards-based design that boosts performance by doubling memory and I/O bandwidth.

Hewlett-Packard Co.
Palo Alto, Calif.
HP 9000
www.hewlett-packard.com

Hewlett-Packard's 9000 series has shown strong in past *Computerworld* customer satisfaction surveys. In this survey, users cited three reasons when they labeled it one of the most valuable products: solid reliability, in-the-box upgrade paths and HP's superior technical support. "Our business can't afford downtime, and these HP 9000s don't go down. We're already planning two more for other offices," says Tim Montoya, systems administrator at the Medic Alert Foundation, U.S., a supplier of emergency medical information. "Its support is top-notch. Their callback always comes 10 minutes after we place the call."

HP's 9000 line contains a broad range of enterprise-class servers. From the entry-level E-class line intended for small businesses or replicated site installations to its latest edition, the high-end V-class line powered by supercomputer backplane technology, the 9000 line includes systems for enterprises of any size. Based on HP's Unix flavor HP-UX, the entire line also is capable of running Windows NT, according to HP officials.

IBM
Armonk, N.Y.
AS/400
www.ibm.com

It may be hard to believe that IBM's AS/400 is still winning awards, but "the AS/400 doesn't break," says Ray Wilde, information systems manager at Anatomical Chart Co. in Skokie, Ill. This midrange system, with proprietary ties to the age before open systems, has had a loyal following since its release in the mid-1980s. Its operating system (OS/400) and database management system (DB2/400) have limitations because each is proprietary. But being proprietary leads to tight integration and thus the AS/400's stability "and the reason we've kept it this long," Wilde says. Other users emphasized the AS/400's ease of use and maintenance.

The AS/400 is a multiuser business computing system based on an integrated architecture. Its newest generation, the AS/400E, is a 64-bit object-oriented architecture offering 8- or 12-way processors. A major addition to this latest series is the integration of Web technologies such as Java, Lotus Domino, ActiveX, Windows NT and network computers.

ENTERPRISE SERVERS	Company/Product	Number of respondents	Average score
*Winner▸	Compaq's ProLiant	172	4.06
*Winner▸	Hewlett-Packard's HP 9000	92	4.02
*Winner▸	IBM's AS/400	83	3.94
Unsung Hero▸	IBM's RS/6000	46	3.72
Unsung Hero▸	Sun's Ultra Enterprise 5000-10000	32	4.16
Other scores▸	Digital Equipment's AlphaServer	54	3.74

WORKGROUP SERVERS

Dell Computer Corp.
Round Rock, Texas
PowerEdge
www.dell.com

Dell hits its familiar sweet spot between performance and cost even with its PowerEdge server line. User comments ranged from "good price/performance" and "powerful yet affordable" to "solid server for a reasonable price."

And more than just power and price, these servers are "remarkably flexible," says Dylan Norden, information systems director at the California League of Conservation Voters in San Francisco. "Hot-swappable power supplies, standard components that monitor internal conditions — these are very capable systems," he says.

Four servers make up the current PowerEdge line, according to Dell. The 2100 is a Pentium Pro-based workgroup or small business server. The 2200 uses 300-MHz Pentium II processors and offers redundant RAID storage. The 4200 is a scalable departmental server using Pentium II processors. And the 6100 is pitched as an enterprise-class server with 200-MHz Pentium Pro processors and plenty of expansion possibilities.

HP's NetServer

Micron's Millennia

Dell's Optiplex

Dell's Dimension

DESKTOP PCs

DESKTOP PCs	Company/Product	Number of respondents	Average score
* Winner ▸	Micron's Millennia	63	4.02
* Winner ▸	Dell's Optiplex	103	3.97
* Winner ▸	Dell's Dimension	151	3.86
Honorable Mention ▸	Gateway's 2000 G Series	133	3.77
Unsung Hero ▸	HP's Vectra	90	3.66
Unsung Hero ▸	Apple's Power Macintosh	69	3.70
Other scores ▸	Compaq's DeskPro	204	3.66
	IBM's PC 300	73	3.66
	Digital's Venturis	20	3.35
	Acer's Power	35	3.34
	NEC's PowerMate	17	3.18
	Digital's Celebris	19	3.16
	AST's Bravo	25	3.12

Micron Technology, Inc.
Boise, Idaho
Millennia
www.micron.com

The convenience with which you can buy PCs today contributes nearly as much to their value as their price and reliability, according to users. The direct sales model is working for corporations, and with Micron, customers order their PCs in the exact configuration they want. Couple that with "a reliable PC that was delivered quickly and is easily supported by our own staff," says Gary Reuter, vice president at LBI Software Engineering in Woodbury, N.Y., and you have a very valuable PC line.

When other users discussed Micron, they emphasized performance and Micron's good support.

Micron offers three Millennia desktop lines. The high-end XKU 300 features 266- or 300-MHz Pentium II-based machines. The MME 233 is based on 200- or 233-MHz Pentium MMX-based chips. And, the similarly configured MME with Fusion 3D is a gamer-tuned system that includes a digital video disc drive, 64-bit sound card, three-piece speaker system and joystick.

Dell Computer Corp.
Optiplex
www.dell.com

In *Computerworld*'s customer-based research, Dell systems always get noted for their high value — it's primarily what Dell competes on. But it's the consistency of components and configurations from system to system that makes these Dell systems special, Optiplex users say. "There are no surprises in these systems," says Sudhir Warrier, vice president of IS at Renaissance Investment Management in Cincinnati.

"Quality" and "most bang for the buck" were the standard comments from other Optiplex users.

Optiplex is Dell's main corporate line of PCs, intended for users who require reliable systems for networked environments. The Optiplex GXa can be ordered with Pentium II processors at 233-, 266- or 300-MHz speeds. The Gn and Gn+ come with either 166- or 233-MHz Pentium processors. Dell claims that the entire Optiplex line, including its line of NetPCs, complies with standards such as Intel Corp.'s Wired For Management specification, which is intended to improve an administrator's efficiency and thereby reduce life cycle cost.

Dell Computer Corp.
Dimension
www.dell.com

The most valuable trait of Dell's Dimension PCs is that they are "trouble-free," says Matt Turley, IS specialist at Carlinville National Bank in Carlinville, Ill. "Their performance is impressive, and their price is even more impressive." Beyond that, Dimensions are packed with loads of state-of-the-art goodies such as 64M bytes of on-board synchronous dynamic RAM, Universal Serial Bus ports and 9.1 G-byte hard drives.

Dimension users cited "price/performance" and "reliability" as reasons for their good ratings.

Dell promotes its Dimension systems as high-performance PCs for budget-minded users in both business and home environments. There are three main models: The Dimension XPS Pentium II is the high-end system with speeds up to 300 MHz; the Dimension XPS Pentium with MMX is a 233-MHz multimedia machine; and the Dimension Pentium with MMX is a value-class multimedia system.

NOTEBOOK PCs

Dell Computer Corp.
Latitude
www.dell.com

Dell's Latitude takes the prize for the most valuable notebook PC because it delivers all that its target users need, without being bogged down with nonessential technologies. "These systems give us all that we need for a relatively inexpensive price," says Linda Hicks, accounting manager at Concept Engineering and Manufacturing, Inc. in Spring Lake, Mich.

Other users praised the Latitude for "excellent value in desktop replacement"

Notebook PCs, page 66

WORKGROUP SERVERS	Company/Product	Number of respondents	Average score
* Winner ▸	Dell's PowerEdge	64	4.20
* Winner ▸	HP's NetServer	65	4.11
Honorable Mention ▸	Compaq's ProSignia	106	3.78
Unsung Hero ▸	Sun's Ultra Enterprise 1-4000	36	3.89
Other scores ▸	IBM's PC Server	65	3.69
	Digital's Prioris	18	3.61

Hewlett-Packard Co.
NetServer
www.hewlett-packard.com

Like many of Hewlett-Packard's products, the NetServer stands out because — it's from HP. "We could easily find another comparable server, but we'd be missing the service we've come to depend on," says Greg Thompson, information technology director at Network Communications, Inc. in Lawrenceville, Ga. Plus, "HP systems have an extremely low failure rate. Much lower than the IBM and Gateways systems we previously used."

HP builds NetServers for mission-critical data center environments and self-supporting workgroups or businesses that don't have dedicated IS departments. Based on Pentium Pro or Pentium II processors, each NetServer comes equipped with administration management tools and three years of next day on-site support.

IT Leaders' Choice, page 66

IT Leaders' CHOICE

Dell's Latitude

Microsoft's Office

Borland's Delphi

NOTEBOOK PCs

CONTINUED FROM PAGE 65

and "excellent features and capabilities vs. price."

Latitude was designed as a value-class notebook. It doesn't include all that is state-of-the-art but does have everything the business traveler needs. Dell promotes the higher-end Inspiron for multimedia-intensive applications. Latitudes range up to a 233-MHz Pentium machine with a 13-in. active-matrix screen, integrated networking through a port replicator option, support for a second battery and Dell's Express Charge, which charges batteries in about an hour.

NOTEBOOK PCs	Company/Product	Number of respondents	Average score
*Winner▸	Dell's Latitude	127	3.91
Honorable Mention▸	Toshiba's Tecra	84	3.76
Unsung Hero▸	Micron's Transport	30	4.03
Other scores▸	IBM's ThinkPad	209	3.66
	Toshiba's Satellite	124	3.65
	Apple's PowerBook	43	3.56
	Gateway's 2000 Solo	46	3.52
	HP's Omnibook	17	3.35
	Compaq's Armada	87	3.34
	NEC's Versa	32	3.03
	Digital's HiNote	16	3.25

OFFICE SUITES

Microsoft Corp.
Redmond, Wash.
Office
www.microsoft.com

Microsoft Office is the best one-stop, integrated suite of business applications on the market, according to users. Office customers use terms such as "versatile," "well-integrated" and "industry standard."

Office 97 added many tools, including Outlook, which is a combination mail client and organizer. It also introduced Binder for storing project files in one place and a host of Internet tools such as the ability to save any Office document in Hypertext Markup Language format. But it was Office's Web integration that put it over the top for many users, including Debra Mielke, CEO of Trillage Network Strategies, Inc. in McKinney, Texas. She says Office 97 has made posting reports on the Web much easier.

The suites from Corel Corp. and Lotus Development Corp. didn't come close to the value rating Microsoft users gave Office, although Corel did land an Unsung Hero award for having a core of loyal users who gave it perfect scores.

OFFICE SUITES	Company/Product	Number of respondents	Average score
*Winner▸	Microsoft's Office	649	3.86
Unsung Hero▸	Corel's WordPerfect Suite	144	3.67
Other scores▸	Lotus' SmartSuite	117	3.41

BROWSERS

Netscape Communications Corp.
Mountain View, Calif.
Navigator
www.netscape.com

"Products that I will use every day and that contribute to changing the way I work don't come along too often," but Navigator is one such tool, according to Thomas Boegel, IS manager at Price Waterhouse LLP in Santo Domingo, Dominican Republic.

Netscape claims that Navigator is the leading software for browsing intranets or the Internet, although research shows Microsoft's Internet Explorer closing the gap in installed base.

BROWSERS	Company/Product	Number of respondents	Average score
*Winner▸	Netscape's Navigator	527	3.83
Other scores▸	Microsoft's Internet Explorer	523	3.41

APPLICATION DEVELOPMENT

Borland International, Inc.
Scotts Valley, Calif.
Delphi
www.borland.com

Borland's Delphi beat out several development tools that have far larger installed bases. For the past two years, Delphi also scored highest in *Computerworld* customer satisfaction surveys. According to users, its success comes from its native code compiler, two-way tools and scalable database technology. Plus, "we've found its performance better than [Microsoft's] Visual Basic or [Powersoft's] PowerBuilder," says Joe Hutchins, a partner at JMAC Software Engineering in Casper, Wyo.

Delphi, now in Version 3.0, is a set of visual, client/server development tools for building distributed enterprise and Web-enabled applications.

APPLICATION DEVELOPMENT	Company/Product	Number of respondents	Average score
*Winner▸	Borland's Delphi	55	3.95
Other scores▸	Borland's JBuilder	17	3.71
	Powersoft's PowerBuilder	74	3.59
	Microsoft's Visual Basic	236	3.59
	Microsoft's Visual C++	140	3.54
	Oracle's Developer 2000	64	3.50
	IBM's VisualAge	37	3.49
	Borland's C++ Builder	35	3.49
	Oracle's Power Objects	30	3.43
	Microsoft's Visual Interdev	54	3.43
	Microsoft's Visual J++	76	3.30
	Sun's Visual Workshop C++	18	3.17

IBM's DB2

HP's OpenView

McAfee's VirusScan

Symantec's Norton Utilities

OPEN SYSTEMS DBMS

IBM
DB2
www.ibm.com

IBM's recent investments in DB2 get a lot of credit for the database management system's strength, according to Robert Tasker, senior vice president at The Yankee Group in Boston.

"We not only agree [with the survey results], but we think DB2 represents the best of breed in open systems DBMS," Tasker says. IBM has worked hard to eliminate DB2's bugs and give it the same look and feel no matter which platform it's running on.

Living on a 14-year run, DB2 has developed a strong degree of stability with its age. It's that stability that elevated it to the status of most-valuable open systems DBMS.

DB2 is a family of industrial-strength relational databases. Its latest version, DB2 Universal Server 5.0, has segments to handle all the major database applications: online transaction processor (OLTP) and data warehousing. There are versions of DB2 for the AS/400, the RS/6000, IBM mainframes, non-IBM machines from Hewlett-Packard and Sun Microsystems, Inc. as well as operating systems such as Windows 95 and Windows NT, OS/2 and a number of Unix versions.

OPEN SYSTEMS DBMS	Company/Product	Number of respondents	Average score
* Winner ▸	IBM's DB2	65	3.85
Honorable Mention ▸	Oracle's Oracle	153	3.76
Unsung Hero ▸	Informix's Online	27	3.11
Other scores ▸	Microsoft's SQL Server	164	3.48
	Sybase's SQL Server	66	3.44
	Informix's Universal Server	20	3.15

NETWORK AND SYSTEMS MANAGEMENT

Hewlett-Packard Co.
OpenView
www.hewlett-packard.com

The keys to OpenView's success are the many vendor partnerships Hewlett-Packard has established for its network/systems management package, according to Gerald Albert, IS supervisor at Van Air Systems in Lake City, Pa.

No single vendor can supply a total management suite for today's complex environments, so the partnerships are there to bolster its functionality.

"HP seems to have more momentum here than its rivals [Tivoli/IBM's TME and Computer Associates' Unicenter]," Albert says.

A year ago, OpenView was just another player in the network/systems management market — albeit a large one. Its rivals, TME 10 and Unicenter, were thought to be the darlings to dominate this market. But times have changed, and OpenView has become the users' choice.

OpenView is a suite of enterprise-management tools. It was once used primarily for network management, but OpenView's systems management capabilities were boosted when HP began remarketing Platinum Technology, Inc.'s systems management functionality with it. Once installed, OpenView maps, configures and polls the network. All of its management tools are controlled through a single management interface.

NETWORK AND SYSTEMS MGMT.	Company/Product	Number of respondents	Average score
* Winner ▸	HP's OpenView	55	3.87
Other scores ▸	Tivoli/IBM's TME 10	29	3.24
	Computer Associates' Unicenter	18	3.00

PC/LAN UTILITIES

McAfee Associates, Inc.
Santa Clara, Calif.
VirusScan
www.mcafee.com

What makes VirusScan valuable, what makes it special, is that "it's always up-to-date," according to David Schaffer, IT manager at Power Construction Co. in Schaumburg, Ill. VirusScan not only detects viruses, but it also removes them. Then, through push technology, McAfee actively sends updates to your desktop so it's armed against the newest threats. "I don't want to worry about viruses. And I don't want to worry about updating my virus software either," Schaffer says.

Other user comments on VirusScan noted that it "runs in the background with little use of system resources."

VirusScan promises total virus protection through McAfee's own virus-detection Hunter engine. VirusScan detects a variety of virus types, including macro viruses that are spread through E-mail in Microsoft Word and Excel files. McAfee packaged VirusScan in its Total Virus Defense Suite last fall.

PC/LAN UTILITIES	Company/Product	Number of respondents	Average score
* Winner ▸	McAfee's VirusScan	338	3.88
* Winner ▸	Symantec's Norton Utilities	180	3.84
Honorable Mention ▸	Symantec's Norton Antivirus	238	3.79
Unsung Hero ▸	McAfee's SaberLAN	19	3.74
Other scores ▸	Dr. Solomon's Anti-Virus Toolkit	49	3.53
	Cheyenne/CA's Anti-Virus	58	3.50
	Novell's Managewise	40	2.98
	Microsoft's SMS	72	2.92

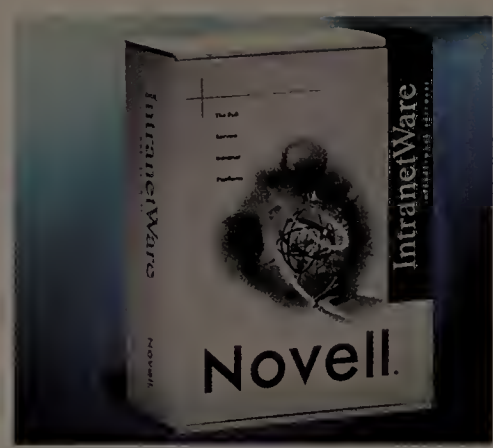
Symantec Corp.
Cupertino, Calif.
Norton Utilities
www.symantec.com

Anyone faced with a serious computer problem will quickly realize the value of this product, but none quicker than novice administrators, according to Ron Snaider, a programmer at Rolex Watch USA, Inc. in New York. "I have enough experience to fix most PC problems on my own if I have to, but for a novice, these tools are invaluable," he says.

Norton Utilities is a collection of tools for troubleshooting and maintaining systems. Available for Windows 95, Windows NT, DOS and Unix, it includes programs designed to diagnose and solve problems, improve system performance and perform maintenance.

IT Leaders' Choice, page 68

IT Leaders' CHOICE



Novell's IntranetWare

Microsoft's Windows NT Server

Qualcomm's Eudora

CONTINUED FROM PAGE 67

OPERATING SYSTEMS	Company/Product	Number of respondents	Average score
Honorable Mention ▸	Novell's IntranetWare	134	3.78
Honorable Mention ▸	Microsoft's Windows NT Server	418	3.77
Other scores ▸	Sun's Solaris	81	3.72
	Microsoft's Windows NT Workstation	362	3.67
	Microsoft's Windows 95	675	3.43
	IBM's OS/2 Warp Server	49	3.29
	IBM's OS/2 Warp	73	3.16
	Apple's Mac OS	112	3.09
	Microsoft's Windows 98/Memphis (beta)	59	2.88

The products that have been slugging it out in the PC/LAN operating systems sector landed in a virtual tie, with both IntranetWare and NT getting honorable mentions

WEB SERVER SOFTWARE	Company/Product	Number of respondents	Average score
Honorable Mention ▸	Netscape's Enterprise Server	64	3.78
Unsung Hero ▸	Apache's Group Apache	27	3.93
Unsung Hero ▸	Lotus' Go (Domino) Web Server	39	3.72
Unsung Hero ▸	Sun's Web Server	19	3.63
Other scores ▸	Microsoft's IIS	133	3.56
	Novell's Web Server	37	3.22

Netscape's Enterprise Server just misses winning a value award in a relatively young technology sector in which several products make solid showings. Apache, for example, scored a perfect 5.0 with 37% of its users.

PERSONAL PRODUCTIVITY TOOLS	Company/Product	Number of respondents	Average score
Other scores ▸	Netscape's Communicator	165	3.62
	Lotus' Organizer	124	3.33
	Microsoft's Outlook	245	3.31
	Starfish's Sidekick	35	2.89
	Corel's Central	18	2.39

Maybe "productivity" is a misnomer for this class of software packages that manage daily calendars, contacts and files. Netscape's Communicator does OK, topping a list of pretty weak scores.

GROUPWARE/ MESSAGING	Company/Product	Number of respondents	Average score
Unsung Hero ▸	Qualcomm's Eudora	84	3.64
Other scores ▸	Lotus' Notes	144	3.63
	Novell's GroupWise	64	3.53
	Microsoft's Exchange	236	3.48
	Lotus' CC:Mail	101	3.40
	Pegasus' Mail	33	3.12
	Microsoft's Mail	144	3.02

These technologies are in transition, with messaging evolving into groupware and groupware being absorbed by the Web. No one excels here, though Eudora scores well with a core of its users.

DESKTOP DBMS	Company/Product	Number of respondents	Average score
Other scores ▸	Microsoft's Access	448	3.54
	Corel/Borland's Paradox	50	3.34
	Microsoft's Visual FoxPro	87	3.20
	Lotus' Approach	61	3.20

With so many of its functions now buried in software such as integrated development tools and other applications, the desktop DBMS may not have the same impact on corporate users as it did early in the PC revolution

WEB DEVELOPMENT TOOLS	Company/Product	Number of respondents	Average score
Other scores ▸	NetObjects' Fusion	27	3.59
	Sun's Java Workshop	37	3.54
	Allaire's Cold Fusion	25	3.52
	Microsoft's Front Page	221	3.35
	SoftQuad's HotMetal	34	3.24
	Netscape's Composer	52	3.21
	Adobe's PageMill	49	3.20
	Oracle's Web Developer	25	3.12
	Corel's Web Site Builder	17	2.94
	Borland's IntraBuilder	15	2.87

Dozens of tools target this emerging area as Web developers make the shift to integrated tool sets, but they haven't made their marks in returning value to users. Front Page has the market share, but Fusion holds a bit of an edge in value ratings.

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COMPUTERWORLD

The Newsweekly for Information Technology Leaders

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65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

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21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
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DEPARTMENTAL MANAGEMENT

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70. Medical, Legal, Accounting Mgmt.

OTHER PROFESSIONAL MGMT.

80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

(a) Solaris (e) Mac OS
(b) NetWare (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTStep

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Mgmt.
60. Sys. Integrators/VARs/Consulting Mgmt.

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(a) Solaris (e) Mac OS
(b) NetWare (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTStep

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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In Depth

As Washington girds to salvage a municipal IT organization in shambles, it seeks inspiration in the Philadelphia story

A TALE OF TWO CITIES

By Gary H. Anthes

The Medicaid computer doesn't talk to the welfare computer in Washington, so the District of Columbia mistakenly pays $34 million to 20,000 people. Meanwhile, flaws in another system cause the nearly bankrupt city to overpay hospitals by $35 million.

Across town, school administrators use Washington's main financial system to report to the public and Congress. But, *The Washington Post* recently revealed, the administrators keep a private set of books on another system to pay tens of millions of dollars to school officials ordered laid off by the City Council.

Elsewhere in Washington, procurement officials — with a zany zeal to promote competition — return computer systems to manufacturers to have free, bundled software removed.

CHRIS HARTLOVE

Michael T. Hernon, Washington's new chief technology officer, says the city's train wreck of an IS department, coupled with congressional interference, may indeed make his "the most difficult government technology position in the country"

A tale of two cities, page 70

A TALE OF TWO CITIES

CONTINUED FROM PAGE 69

YOUR TAX DOLLARS AT WORK

Washington outspends Philadelphia by nearly 6 to 1, but the capital's citizens get very little bang for their IT buck

City	Population	Annual IS spending	IS spending per capita
Washington	550,000	$100 million	$182
Philadelphia	1.5 million	$49 million	$33

Source: U.S. Census Bureau, city governments

Then they put out separate bid requests for the software.

Work cut out for him

It's hard not to feel sympathy for the man recently hired to clean up the information systems mess in the nation's capital. "I have to believe this is the most difficult government technology position in the country, if not the world," sighs Michael T. Hernon, the District of Columbia's new chief technology officer and, until recently, CTO for the city of Boston.

But Hernon could look for inspiration 100 miles north, in Philadelphia — which might be called "Phoenix East" for the way it has risen from the ashes of fiscal and IS mismanagement.

In 1992, Philadelphia Mayor Edward Rendell was elected on a promise to reverse the city's decades-long slide toward bankruptcy. The city was projecting a deficit of $200 million for the year. Businesses and residents were fleeing. Labor unions were out of control. And city services stank. "Philadelphia sets the standard for municipal distress in the 1990s," said *City and State* magazine at the time.

Washington is at the crossroads where Philadelphia stood six years ago – one marked by fiscal distress, mismanagement, lack of discipline and antiquated systems.

The city's information systems mirrored that sorry state and, in fact, looked a lot like those in Washington today. Many city departments had their own IS shops or had no automation at all. Systems were old and poorly supported, and layers of bureaucracy stifled efforts to improve them. There were few performance measures for IS, and the central Philadelphia Computing Center was about as user-unfriendly as a service organization could be.

"The city was in a catastrophic state in terms of IT," says Linda Berkowitz, deputy mayor for management and productivity. Berkowitz says the fiscal situation was so perilous that she met every Monday morning with senior city officials to "do triage on a list of vendors who had not been paid."

Getting stronger

But by the end of 1995, Rendell had balanced the budget three years running — without cutting services or raising taxes. In just two years, Philadelphia saved $450 million through outsourcing, services consolidation, labor union concessions and technology initiatives.

The New York Times called the city's success "one of the most stunning turnarounds in history." And in 1996, *Fortune* magazine ranked Philadelphia third in its "Best Cities for Family and Work" survey.

Today, Washington is at the crossroads Philadelphia stood at six years ago — characterized by fiscal distress, mismanagement, lack of discipline and antiquated systems. But observers say Washington could follow the road to health, right behind Philadelphia.

This tale of two cities may also hold lessons for corporations struggling with dilapidated information systems, facilities and practices.

In Philadelphia, one of Rendell's first actions after his election was to appoint a 41-member private-sector task force to advise on matters of management and productivity. A key recommendation was to establish a cabinet-level CIO position and a new, centralized Mayor's Office of Information Systems.

To attract top talent from the private sector, legislation was passed that allowed the city to pay the CIO more than any other employee — including the mayor.

Rendell, CIO John Carrow (who last year left the city to become CIO at Unisys Corp.) and their deputies insisted the city be run more like a business, with a laser-like focus on cost-effective customer service.

"In Philadelphia, it's a badge of honor to have fewer people working for you now than you had five years ago," says Ben Hayllar, the city's finance director. "I used to have 1,100 people; now I have 900. That's attributable to efficiency, and information technology is a key part of that."

To make IS more service-oriented, Carrow appointed four portfolio managers — senior, nontechnical people to coordinate among IS, users in government and the public. "They are the eyes and ears of the CIO," Deputy CIO Louis Malfara says. IS managers, the portfolio managers and key vendor personnel meet every Friday morning to review IS performance, he says.

IS also moved away from traditional process-based performance measures — such as numbers of transactions processed — to results-based performance measures such as the percentage of help desk requests resolved by telephone and the number of users trained at the computer training center. In 1994, 811 city workers received computer training; two years later, 9,317 were trained.

Another Rendell innovation was the establishment of a "productivity bank," a $20 million revolving loan fund for city agencies.

The loans have been given mostly for IS initiatives and are expected to return $60 million in added revenue or reduced expenses over five years, Berkowitz says.

For example, the $9.3 million the city has loaned to the Department of Revenue for tax systems upgrades is expected to boost revenue $40 million over five years.

Automation spread throughout Philadelphia government, and in four years the number of computer users increased from 3,000 to 12,000, all connected by a new fiber-optic wide-area network. Meanwhile, newly centralized software purchases saved the city millions of dollars through volume discounts.

Copycat

Philadelphia officials say Washington could emulate the city's success. Indeed, Hernon's agenda mirrors Philadelphia's recent past. He says he'll centralize and standardize IS, overhaul key applications, modernize computer and communications systems, eliminate redundant facilities, develop performance-based metrics for IS, streamline procurement processes, beef up training and move aggressively on the year 2000 problem.

But Washington may find the job more difficult than Philadelphia did. The nation's capital has unique challenges because it must bear alone the burdens that other cities share with state and county governments. And it must contend with a well-meaning but meddlesome Congress.

Recently, Rep. Charles H. Taylor (R-N.C.) tried unsuccessfully to block the district's $28 million contract award for a new financial management system (FMS).

Taylor, chairman of the House Appropriations Subcommittee on

John Carrow, now at Unisys, was Philadelphia's CIO during much of its IT turnaround. He appointed nontechnical "portfolio managers" to coordinate among IS, users and citizens.

the District, says Washington's problems with its existing financial system stem mostly from "people problems" — including poor computer and accounting skills, lack of discipline and poor internal controls and management practices.

There is some support for that claim. Washington Mayor Marion Barry Jr. calls city government a "management wasteland," and he's acknowledged that senior public officials routinely override system controls in order to overspend their budgets.

In 1995, the city's financial control board found that "millions of dollars of bills are not entered into the FMS until months and sometimes years after they are paid."

Washington's inspector general says the district also hasn't adequately analyzed requirements or alternatives to justify the $28 million award.

And consultants say so many items — such as interface development and data conversion — haven't been considered that the total cost of a new FMS could go much higher than $28 million.

Critics have reason to look at Washington's IS spending with some alarm.

The city spends about six times more per capita on IS than Philadelphia does and, by all accounts, district taxpayers get far less (see chart, page 70).

Nevertheless, Taylor failed in his legislative attempt to block the FMS award, so Washington is proceeding.

Hernon says he expects to have a pilot FMS running next month, and he says there is a very comprehensive training program planned for the new system.

To-do list

Recent reports from consultants recommended 342 management reform projects for the city, 30 to 40 of which are technology-oriented, Hernon says. Getting them done with a skill-impaired workforce won't be easy.

"We have a real challenge here attracting and retaining people with the skills we need, like PowerBuilder, SQL Server or Oracle," Hernon says.

So how will he do that? "We may not try," he acknowledges. Much of the software development and systems operations will simply be outsourced.

An "assessment" program for the year 2000 problem has begun, but there is no schedule yet for the huge job, Hernon says.

There are two separate cost estimates — $25 million and $45 million — and he says he worries the effort will siphon funds needed for other projects.

Hernon says he's also worried that if the project doesn't go well or isn't finished on time, the ensuing debacle will underscore the district's image of incompetence and invite more congressional intervention.

> "In Philadelphia, there was nobody to rescue us, and everybody knew it. So we elected a mayor who said, 'I will fix this, but you're going to have to take tough medicine.' "
>
> – John Claypool, executive director of Greater Philadelphia First

Of all the IS challenges facing the district, the year 2000 problem is "clearly our No. 1 priority," says Edward Singletary, the financial control board member who oversees IS.

Other pressing priorities are to overhaul the failing systems that serve the public, such as the vehicle registration and business permit systems, he adds.

Asked if Philadelphia might provide a model, Singletary says, "We have visited Philadelphia, and we have learned a lot from them. We are not trying to reinvent the wheel."

John Claypool, executive director of Greater Philadelphia First, says many of Philadelphia's technological innovations could, in principle, be transferred to Washington, but the climate will favor neither innovation nor discipline as long as there's the belief that Congress may bail the District out. "In Philadelphia, there was nobody to rescue us, and everybody knew it," Claypool says. "So we elected a mayor who said, 'I will fix this, but you're going to have to take tough medicine.' " □

Anthes is Computerworld*'s senior editor, special reports. His Internet address is gary_anthes@cw.com.*

A CAPITAL Mess

Here's what IS looks like in the town that calls itself "the most powerful city in the world":

- Mission-critical applications run on 286-based PCs housed in condemned buildings.
- Redundant data centers run at 40% of capacity, wasting millions of dollars.
- Systems highly visible to the public, such as the one for motor vehicle registration, fail constantly because of ancient equipment.
- Badly needed new systems are stalled by a procurement process choking on red tape. New software for one critical application has been sitting unused for two years waiting for hardware to be acquired.
- The city's 80 data networks don't connect to one another, 40% of all telephones are rotary phones, and there is no governmentwide phone directory.
- There are no disaster recovery plans for most mission-critical applications, no performance metrics for IS and no IS budget.

Source: Maximus, Inc., McLean, Va.

IT Careers

The Top 25 IS Job

Which are the best U.S. cities to look for an IS job? *Computerworld* tallied the results of its annual Salary, Skills, Hiring and Job Forecast surveys to find out.

(Listed from west to east)

SEATTLE

Salaries: $72,200 for a director of IS; $52,000 for a director of systems development; $40,000 for a programmer/analyst
Population: 3.3 million
Median house cost: $164,600

If you can't bear to be without your pet at work, consider moving to Seattle. One company in this highly competitive job market lets workers bring their cats, dogs, birds, fish and other domestic beasts to the office.

Local employers are going to great lengths to create employee-friendly environments to attract top candidates, says Deborah Cristal, area sales manager at the Portland, Ore., office of RHI Consulting, a division of IS recruiter Robert Half International, Inc. that covers the Pacific Northwest.

But don't be fooled by the laid-back ambiance: With a host of start-ups in the area, many of them founded with money made at granddaddy company Microsoft Corp., information systems workweeks are long, and the work ethic is intense. Development languages such as C, C++, Visual Basic and Java, plus Windows NT, SQL Server, Oracle, Oracle Financials and PeopleSoft skills top the hot list.

SAN FRANCISCO

Salaries: $82,000 for a director of IS; $65,000 for a senior systems analyst; $49,000 for a LAN manager
Population: 6.6 million
Median house cost: $289,000

Although best known for its high-tech employers, the San Francisco Bay area is much more diversified, encompassing apparel manufacturing, financial services, health care, biotechnology and other industries.

Qualified IS professionals with Novell-to-NT migration experience or client/server or database programming skills can have their pick of offers within a couple of weeks, says President Dave Hollingshead at IS recruiter PFC, Inc.

The area's large concentration of employers lets IS professionals significantly accelerate their careers by industry-hopping, Hollingshead says.

SAN DIEGO

Salaries: $98,000 for a chief information officer; $52,000 for a network administrator; $47,000 for a project leader
Population: 2.6 million
Median house cost: $250,000

San Diego is a high-tech town, ideal for IS professionals who want to make a transition to software engineering or product development. Staffs are small in the city's plethora of biotechnology, wireless, medical products and software companies, so overall mobility within IS organizations is somewhat restricted.

Database and systems administrators are well-positioned for a move to the engineering side of the house, says Amy Moser, a vice president at The TriStaff Group, Inc., an IS and software engineering recruiter. Initial job searches can take three to four weeks, and salaries are competitive with the rest of the state, factoring in a cost of living lower than that of Los Angeles or San Francisco.

LAS VEGAS

Salaries: $87,000 for a CIO; $60,000 for a project manager; $45,000 for a network administrator
Population: 1.2 million
Median house cost: $128,000

It's damn hot in Las Vegas, and we're not talking temperature. Gambling rules everything in the neon desert, and the real action for IS professionals is graphical user interface development in the "gaming industry," as the casinos like to call their trade. There's also a need for a lot of object-oriented development and software engineering, says David Daku, division director at RHI Consulting.

Also, some major corporations opening branches here are looking for networking professionals, especially with NT savvy, who can manage the links to the home office and around the country. The best and worst of Las Vegas is the exponential growth — lots of opportunity, but be ready to deal with chaos.

PHOENIX

Salaries: $86,000 for a CIO; $52,000 for a senior systems analyst; $37,000 for a programmer/analyst
Population: 2.7 million
Median house cost: $105,300

It seems as if everyone wants a silicon implant these days, and Phoenix is no exception. The area has dubbed itself the Silicon Desert, reflecting the growth in IS hiring in the past few years, both by vendors and in corporate IT. Leading employers include chip manufacturer Intel Corp., Motorola, Inc., VLSI Technology, Inc. and former defense companies such as AlliedSignal, Inc., Lockheed Martin Corp. and The Boeing Co.

There's a plethora of programmer/analyst positions open, says Charlie G. Balchumas, managing director of Source Services. The work culture is laid-back, as is the lifestyle. The downside to the employment growth (No. 2 in the country) is a somewhat transient population. "You can just get to know someone, and they are gone," Balchumas says.

DENVER

Salaries: $110,000 for a CIO; $50,000 for a senior systems analyst; $51,000 for a LAN manager
Population: 2.3 million
Median house cost: $178,000

There are lots of things to do in Denver — personally and professionally. In addition to the area's skiing and other outdoor activities, downtown is exploding with entertainment, art and music, lofts and living areas.

The Mile High City also is experiencing an economic boom, and there are plenty of IS jobs available. The area has a large cadre of high-tech and telecommunications companies, and projects vary widely, says Keith Backes, a senior recruiter at Information Technologies Resources.

Companies in Denver pride themselves on being employee-driven and innovative. Even with long hours, the work culture is relaxed and flexible. It's an employee's market in Denver, and companies are willing to adapt to a candidate's needs, Backes says.

AUSTIN, TEXAS

Salaries: $86,000 for a director of IS; $62,000 for a project manager; $45,000 for a senior programmer
Population: 1 million
Median house cost: $120,000

JOHN LITTLE

Between the likes of IBM, Dell Computer Corp., more than 350 software companies and some major chip manufacturers, Austin has truly earned its Silicon Hills moniker. Hiring in Austin is at an all-time high, with no slacking in sight.

But this isn't a traditional market, warns Jonathan Hines, manager of technical recruiting at Pencom Systems, Inc. "Austin is a start-up town with significant venture capital," he says. Translation: Companies are looking for energetic self-starters who, at the same time, are team-oriented, with skills in Visual C++, Java, relational databases and NT. The work culture is a unique blend of aggressive hours in a relaxed atmosphere.

Markets

By Leslie Goff and Emily Leinfuss

DALLAS/FORT WORTH

Salaries: $128,000 for a CIO; $59,000 for a project leader; $39,000 for a programmer/analyst
Population: 4.6 million
Median house cost: $130,000

The cellular vs. digital telecommunications battle rages in Dallas, where Southwestern Bell Telephone Co., Ericsson, Inc., Nortel, Inc., Texas Instruments, Inc. and GTE Corp. compete against one another and for IS professionals who have across-the-board skills. And the financial services, defense, energy, health care and consulting industries are all experiencing growth in Dallas. Hence, there's a strong need at the executive level for CIOs and IS directors who have proven experience in building networks, says Bill Rowe II, managing associate at Foster Partners, a placement firm.

Networking analysts, computer engineers, programmers and developers are also in high demand. "These companies all just can't get enough," Rowe says.

MINNEAPOLIS/ST. PAUL

Salaries: $60,000 for a project manager; $55,000 for a director systems development; $49,000 for a senior systems programmer
Population: 2.7 million
Median house cost: $103,700

For some reason, women in IS do exceedingly well in the Minneapolis/St. Paul area, notes Jim Kwapick, regional manager at Robert Half International in Minneapolis. And though the weather is cold, the IS job market is very hot. Employers must go to extremes to attract and retain IS talent.

Major industries include agriculture (General Mills, Inc. and Pillsbury Co.), retailing (Dayton Hudson Corp. and Target Industries), transportation (Northwest Airlines, Inc.), manufacturing (3M Corp. and Honeywell, Inc.) and financial services (Norwest Bank International, First Bank and American Express Financial Advisors). Niche skills such as SAP, Oracle Financials and PeopleSoft are much sought after.

MILWAUKEE

Salaries: $99,000 for a CIO; $53,000 for a director of networks; $52,000 for a senior systems analyst
Population: 1.5 million
Median house cost: $132,673

This homey, classic Midwestern city, known for its brewing companies, has a bright hiring picture for IS employees, says Robin Pickering, technical recruiter at employment services firm Manpower, Inc. This is a manufacturing-based community with a strong cadre of financial services firms looking to fill positions at a wide range of skills and levels.

"Programmers, year 2000 analysts and Cobol experts can ask what they want for income," Pickering says. And IS professionals with strong management, communication and design and development skills can also name their price in this city where the cost of living is 5% above the national average, he says. Sports fans can have a field day among the Packers, the Brewers and the Bucks.

DES MOINES, IOWA

Salaries: $82,000 for a director of systems development; $46,000 for a LAN manager; $39,000 for a systems analyst
Population: 427,000
Median house cost: $102,000

After Hartford, Conn., and London, Des Moines has the third-largest concentration of insurance companies in the world. There's high demand among those companies for year 2000 Cobol talent.

That, coupled with the area's unemployment rate of less than 3%, has led to some practically unheard-of offers to relocate people to this Midwestern city, says Kim Knoll, an IS recruiter at Executive Resources Ltd. in Des Moines. For example, a data center manager from Connecticut was enticed to move when a Des Moines employer increased his annual base pay from $59,000 to $85,000, plus bonuses that put his total compensation at more than $100,000.

ST. LOUIS

Salaries: $96,000 for a CIO; $51,000 for a senior programmer/analyst; $44,000 for a systems analyst
Population: 2.5 million
Median house cost: $100,000

If you're seeking a job as a project

leader or an IS manager, check out St. Louis. The Gateway to the West is among the top five U.S. cities for corporate headquarters. The concentration of employers and a diversified industry base of financial services, manufacturing and distribution have IS organizations in a vise-like grip.

Staff sizes have doubled in the past few years, says Jeannie Jones, a vice president at IS recruiting firm Executive Career Consultants, Inc. Oracle database administrators and developers and data warehousing are hot prospects. St. Louis is especially strapped for leadership talent, resulting in a somewhat stressful work environment: IS managers have two to three times as many direct reports as they should.

CHICAGO

Salaries: $169,000 for a CIO; $98,000 for a director of systems development; $70,000 for a LAN manager
Population: 7.7 million
Median house cost: $122,800

They say living in Chicago builds character — the stormy weather is the weapon that keeps this great city from becoming overpopulated.

There aren't as many bleeding-edge projects here as there are tried-and-true ones with calculable payoffs, says Paul Eichorn, partner at IS search firm DeSaulniers Macloud.

Chicago companies are looking for a wide range of skills, including C, C++, Cobol, relational database and networking experience, to be tapped for strategy-oriented projects such as data warehousing and supply-chain management.

Demand is beyond strong — it's almost desperate, and companies are hiring people with any skill at all and offering retraining. They're also implementing measures such as flextime, increased educational compensation and casual days.

MEMPHIS

Salaries: $115,000 for a CIO; $49,000 for a project manager; $44,000 for a senior systems analyst
Population: 1.1 million
Median house cost: $105,590

This city on the east bank of the Mississippi River offers a mixed bag of opportunities and diversity to IS professionals. There's a multitude of jobs available in Memphis, and people with a combination of legacy system and client/server background are needed. Jobs in demand include developer, programmer and systems analyst, says Jill Herrin, CEO of recruitment firm J&D Resources, Inc.

Service and distribution is big — Federal Express Corp. is based here, and spurred by IBM, the city is emerging as a hub for call center operations. There are far more jobs than people, so job security is strong. Memphis offers a low cost of living, no state income tax and competitive salaries. The trade-off, Herring says, is that if you're looking to be in a cutting-edge company, you won't find it here.

CLEVELAND

Salaries: $106,000 for a CIO; $55,000 for a director of networks; $43,000 for a systems analyst
Population: 2.2 million
Median house cost: About $112,000

As a Rust Belt city in the 1980s, Cleveland learned some hard business lessons. But the payoff is in its shining future. IS job demand is the strongest it's been in 10 years for the business triad of Cleveland, Akron and Canton, says Shirley Bascom, president of the North Canton office of MRI. The area's traditional manufacturing base, firms such as Goodyear Tire & Rubber Co., Ford Motor Co. and The Timken Co., turned itself around by using high-tech methods and it isn't about to drop them now.

Demand for IS talent is strong across the board and especially strong for the hands-on developer — someone who can do coding if needed but who understands and communicates the broader picture. Despite the snowy winters, the city is thriving with its new Science Center and the Rock and Roll Hall of Fame and Museum.

ATLANTA

Salaries: $183,000 for a CIO; $71,000 for a project manager; $59,000 for a senior systems analyst
Population: 3.5 million
Median house price: $132,600

Atlanta has avenged the beating it took from Sherman's troops. It has drawn an influx of both employers and employees

Top 25, page 74

The Top 25 IS Job Markets

CONTINUED FROM PAGE 73

with its Southern charm, low cost of living and high quality of life. Fortune 1,000 companies in the high-tech, health care and financial services arenas have relocated large divisions to the city. That has created a wealth of new jobs, says Marsha Dorhout, area manager at RHI Consulting.

In 1997 alone, 80,000 jobs were filled in Atlanta. The IS supply-and-demand gap is wide. Oracle, SQL Server, Visual Basic, Cobol and NT are all hot skills. And because local newshound CNN is a large Macintosh shop, Macintosh administration experience is also in demand.

MIAMI

Salaries: $123,000 for a CIO; $54,000 for a project leader; $39,000 for a programmer/analyst
Population: 3.5 million
Median house cost: $137,800

This coastal Florida city has undergone a renaissance in the past decade. Several companies that relocated their headquarters here have diversified the industry base. Miami now boasts manufacturing, distribution and financial services firms in addition to the travel-related firms that were already prevalent. The relocations have resulted in a lot of new applications development work, says Arthur Nemiro, product sales manager at Source EDP, an IS recruiting firm.

Employers are seeking programmer/analysts with Visual Basic and C++ skills, as well as NT, Unix, Microsoft SQL Server and Oracle skills. And the many midsize companies in the metropolitan area that stretches up to West Palm Beach keep AS/400 demand high.

RALEIGH/DURHAM, N.C.

Salaries: $94,000 for a director of networks; $69,000 for a network administrator; $48,000 for a senior systems analyst
Population: 1 million
Median house cost: $160,000

The Raleigh/Durham metropolitan area is home to Research Triangle Park. It also has several leading universities set in a pastoral, gentle environment. And it's considered one of the most desirable places in the country to live.

Telecommunications, high-tech, pharmaceutical and biotechnology companies dominate the area. They're seeking top-notch object-oriented programmers, database developers and administrators, and network and systems administrators who have a cache of client/server experience, says Jim Kenner, an assistant vice president at Pencom Systems, Inc. in Reston, Va. Those who fit the bill can negotiate relocation expenses, house-hunting trips, real estate fees and high salaries relative to the cost of living.

RICHMOND, VA.

Salaries: $78,000 for a director of IS; $51,000 for a LAN manager; $49,000 for a systems analyst
Population: 935,000
Median house cost: $133,000

Richmond may still be better known as the capital of the Confederacy and the home of the young Edgar Allan Poe than as a place of industry. But for a modest-size city, it has a good chunk of Fortune 500 companies operating within the metropolitan area. Leading employers include Philip Morris Cos., Reynolds Metals Co. and other manufacturers.

Local employers need SAP and other manufacturing package experience as well as application development skills. But an IS job search can take a little longer here than in other top markets, averaging four to six weeks.

WASHINGTON

Salaries: $68,000 for a project manager; $61,000 for a senior systems analyst; $43,000 for a programmer/analyst
Population: 4.5 million
Median house cost: $150,000

Traditionally thought of as a one-company town — government and government contracting — Washington has become one of the nation's fastest-growing commercial markets. The capital is a hotbed of telecommunications and Internet backbone activity, notes Paul Villella, managing director of Source Services Corp., an IS recruiting firm in Vienna, Va.

Telecommunications industry experience is a plus, and in-demand skills include object-oriented programming, Java, Hypertext Markup Language and database. Employers especially need technical managers and often must promote IS staffers to project leader before they develop the requisite maturity.

ROCHESTER, N.Y.

Salaries: $159,000 for a CIO; $55,000 for a senior systems programmer; $51,000 for a senior programmer/analyst
Population: 1 million
Median house cost: $112,110

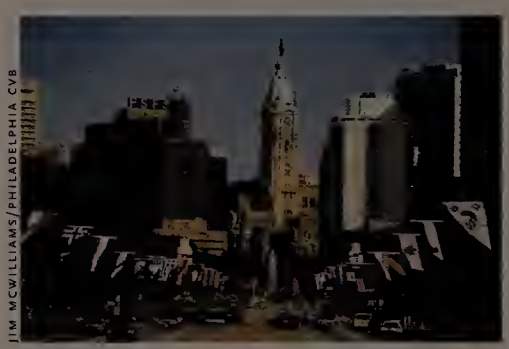
Rochester's reputation as "The World's Image Center" arises from being the birthplace of companies such as Eastman Kodak Co., Bausch & Lomb, Inc. and Xerox Corp. Those companies' old-style, paternalistic legacy lives on in a family-oriented way: The companies care for their employees and reinvest in the city, says Tom Traynor, president of IS search firm Traynor Confidential Ltd.

Demand for IS professionals, especially nuts-and-bolts people, is very strong. Software engineers and programmer/analysts get to play with the latest technology toys, thanks to the leading-edge nature of those core companies. The downside of high demand is long hours and lots of deadlines.

Yes, it's cold in the winter, but a typical commute to the city from the suburbs takes only 10 minutes.

PHILADELPHIA

Salaries: $120,000 for a CIO; $81,000 for a project leader; $65,000 for a communications specialist
Population: 4.9 million
Median house cost: Not available



JIM MCWILLIAMS/PHILADELPHIA CVB

Philadelphia may be one of the most underrated and underestimated cities in the country. Those who live there know it offers tremendous opportunity and a variety of cultural perks, says Joseph Griffith, division vice president of information technology at Romac International. IS opportunities abound in just about every technology — support of year 2000 conversion work, client/server, Internet and intranet applications and implementation of large software packages.

The City of Brotherly Love is also becoming more receptive to innovative compensation and retention measures to compete for good IS professionals.

NEW YORK

Salaries: $152,000 for a CIO; $83,000 for a manager of voice and data communications; $72,000 for a systems analyst
Population: 8.6 million
Median housing cost: Not available

New York's Silicon Alley presents a tremendous amount of opportunity to IS professionals. But be warned: The hottest positions are for IS professionals who understand the business, says Jack Schwartz, manager of technical recruiting at Jarvis Walker Group. The work culture in New York is as varied as the city itself. The big financial services firms, large banks and insurance companies are button-down gigs with 12-hour days, six days per week. But the compensation is worth it if your job is the driving force in your life.

The hungry start-up firms offer a more casual environment, with flextime and home-office work. These companies are technology-driven. Many of them are involved in Internet-related projects and are looking for people skilled in Java and database technology.

HARTFORD, CONN.

Salaries: $127,000 for a CIO; $74,000 for a manager of voice and data communications; $57,000 for a network administrator
Population: 1.1 million
Median house cost: $120,000 (Hartford County)

Demand for client/server skills has increased 100% in the past year in this insurance city, says veteran IS recruiter Stan Durbas, president of Data Careers, a nationwide IS placement firm in Middletown, Conn. Large insurance companies such as Aetna, Inc., Cigna Corp., Travelers Insurance Co. and Hartford Life Insurance Co. are tackling the year 2000 problem by converting their legacy systems to distributed technologies. So applications developers, Oracle database administrators and developers and NT administrators are landing multiple job offers within one to two weeks.

IS pros with Cobol skills merely have to show up to get a job in the area, Durbas says. The need for Cobol talent is even greater than companies had anticipated only 18 months ago.

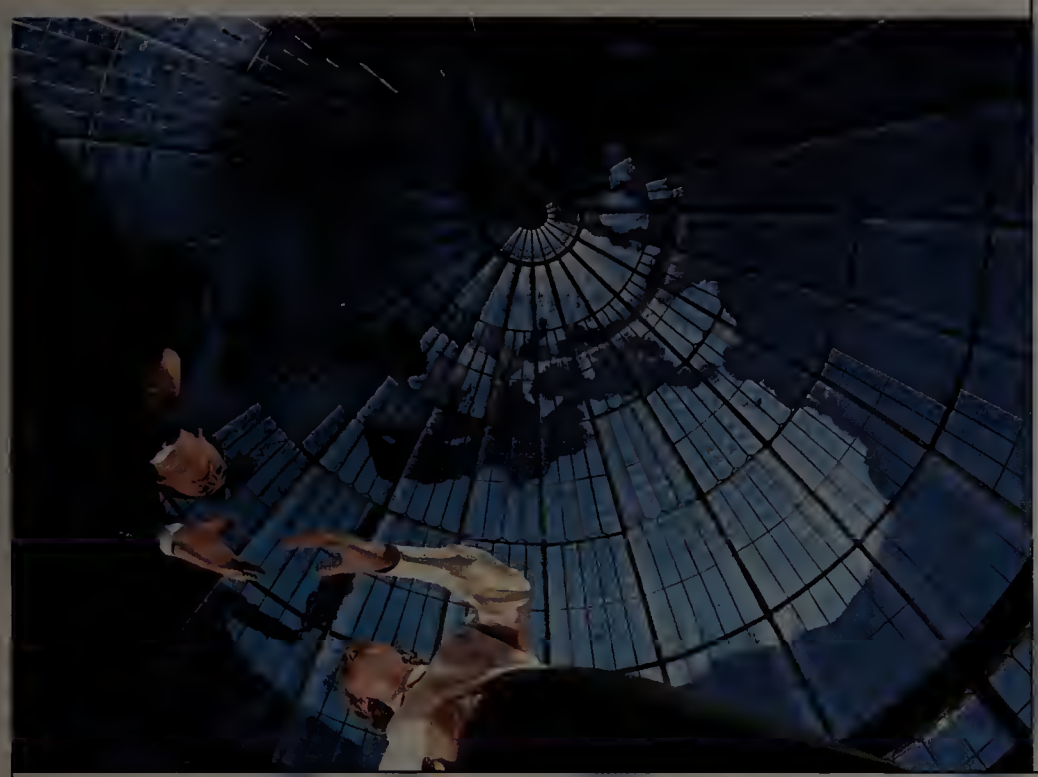
BOSTON

Salaries: $123,000 for a CIO; $69,000 for a director of IS; $69,000 for a project leader
Population: 3.3 million
Median house cost: $241,468

The greater Boston area was hard-hit in the recession earlier this decade. It's now enjoying one of the country's strongest comebacks. Employers in the computer, banking, insurance and financial services industries are retooling legacy systems. That's creating a high demand for skilled application developers and project managers, says Frank Goldschmidt, a veteran recruiter at Robert Half International in Lexington, Mass.

Goldschmidt says he has hundreds of openings to fill at any given time. IS professionals can garner multiple offers within several weeks. Companies often pay all of a winning candidate's relocation expenses, short of buying a house. They also offer signing and retention bonuses and higher-than-average salaries. □

Goff is a freelance writer in New York. Leinfuss is a freelance writer in Sarasota, Fla. (All photos are courtesy of local convention and visitors' bureaus, except as noted.)



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THE RECRUITERS' view

REGIONAL SCOPE

THE CALIFORNIA DIVISION OF TOURISM

What IS jobs and skills should you invest in for '98? *Computerworld* asked four leading area recruiters

BY JEFFERY D. ZBAR

CW: What Southern California industries will be hiring the most information systems staff in 1998, and for what job areas?

MOSER: The electronics industry, companies involved in medical devices, telecommunications equipment, robotics and the biotech industry. Software companies are growing, but they tend to have smaller information technology staffs.

MACKINNON: In Southern California, entertainment is obviously very big, [as are] financial institutions, insurance companies and consumer product companies like Disney.

CW: What skills will be the most in demand for IS professionals in 1998?

MACKINNON: Most companies are looking at packages with respect to corporate systems. So knowledge of Oracle, PeopleSoft and SAP are still extremely valuable skills. Companies and consulting firms are hiring more functional people.

Consulting firms want CPAs, for example, who may have been involved in an Oracle financial installation on the user end.

They're also looking for people who understand three-tier architecture, client/server developers, database analysts and data analysts.

WADE: Beyond Oracle, which is the No. 1 demand here, we're seeing demand for people with Windows NT systems administrator, SQL server programming and database administration backgrounds.

CW: Are there any emerging technology areas that IS professionals should target for career opportunities in Southern California?

MOSER: The data warehouse background. We're just beginning to see the tip of that iceberg.

JANULAITIS: The most emerging technologies deal with object orientation and how to actually implement NT in the enterprise environment. What you're going to start seeing in the next six to 12 months is an acceleration and growth of organizations who are moving away from the Novell environment and into the NT Workstation environment.

WADE: The Windows NT/SQL Server area is emerging, primarily on the PC Windows platform with Visual C++. [We're seeing] less demand on the Unix side. Small companies here tend to lag behind big companies as far as new technologies. So something like Java, which is pretty hot nationally, we don't have a lot of demand for yet in San Diego.

CW: What is the business culture like in Southern California? What are the work hours?

MOSER: We're not New York City, where they see who can work the longest. Generally speaking, most companies are making do with smaller staffs, so people are putting in more than 40-hour weeks. We do more 6:30 to 4:30 or 9:30 to 6:30 flex hours because of traffic.

CW: How are salaries for IS professionals here? Does it vary within the region?

JANULAITIS: Salaries are higher than in other parts of the country, but the cost of living tends to be higher.

Over the last year, salaries increased by 8% to 12% across the board, and they increased at a higher level for the in-demand skills and the top CIO positions.

If you are a good project manager and can manage people, you're talking in the $80s or $90s in salary. A good programmer/analyst who understands the latest technology — I'm probably paying them about $45,000 to $60,000 in Southern California, [and] in Salt Lake, I'm paying anywhere from $25,000 to $40,000.

CW: How choosy can job seekers be in the current IS job market?

MOSER: If they've got marketable skills, they can be very choosy. There are so many more openings than there are people. Clearly, IT professionals are in the driver's seat.

CW: What cities or counties are especially promising in Southern California for IS job seekers?

JANULAITIS: The entertainment industry has started to move from the Hollywood area to the West Los Angeles and Marina Del Rey areas. Orange County's Spectrum Park is very promising, with a lot of small high-tech companies and software organizations.

You also have the Ventura-Moore Park area, where you have a lower cost of living and some good start-up opportunities.

MACKINNON: First you choose where you want to live, then you find a job, because there's that much hiring going on all over.

Los Angeles County, Orange County, the west side of Los Angeles, Irvine — all are very busy with a lot of hiring.

The San Fernando Valley has pockets of technology. Even the Inland Empire (Riverside, San Bernardino and Upland), east of downtown Los Angeles, is growing dramatically. □

Zbar is a freelance writer in Coral Springs, Fla.

ABOUT THE RECRUITERS

AMY MOSER is a vice president at TriStaff Group, Inc. in San Diego.

VICTOR JANULAITIS is CEO of Positive Support Review, Inc. in Santa Monica.

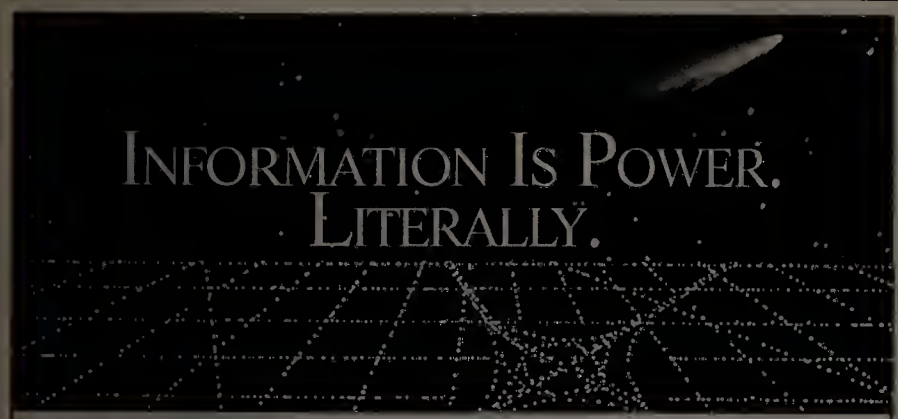
HELEN MACKINNON is president of Technical Connections, Inc. in Los Angeles.

LARRY WADE is president of Larry Wade & Associates in San Diego.

SALARIES IN SOUTHERN CALIFORNIA

JOB TITLE	SOUTHERN CALIFORNIA TOTAL COMPENSATION	NATIONAL AVERAGE
Director of systems development	$82,000	$82,000
Director of networks	$73,000	$74,000
Database manager	$73,000	$61,000
Senior systems analyst	$70,000	$56,000
Director of IS operations	$66,000	$72,000
Project leader	$58,000	$62,000
Webmaster/Web designer	$57,000	$51,000
Computer operations manager	$55,000	$56,000
Systems analyst	$49,000	$51,000

Source: *Computerworld*'s 1997 Annual Salary Survey



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- Implement innovative software solutions using full life-cycle development.

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- Develop and update test plans and case documents based on user requirements.
- Generate test data using IBM and Tandem systems.
- Set up test JCL job streams, and use DB2 and MVS utilities to set up and display test data.

Programmer Analyst
- Analysis and design of complex applications using Easytrieve Plus, SAS, and JCL

Technical Project Leader
- Lead logical and/or physical database design of large, complex applications
- Work and coordinate design with Database Administrators, Software Developers and end users.
- Experience in IBM MVS/TSO, JCL/PROC and IBM utilities required.

Tandem Software Programmer
- Develop software applications to perform custom processing of consumer credit information for major financial institutions.
- Design and code software on the Tandem platform using COBOL and C.

SUPPORT

Communications Specialist
- Prepare detailed Local and Wide Area Network requirements and design plans. Provide testing, troubleshooting and implementation.
- Requires data and telecommunications experience: LAN, WAN, SNA and VTAM.

Data Center Technical Support
- Analyze, code, review and modify JCL, PROCS and other JCL components.
- Provide technical documentation, and insure Data Center standards, procedures and guidelines are adhered to.

Technical Consultant
- Participate in the telecommunications aspects of strategic company projects and initiatives.
- Work with large multi-platform and multi-protocol networks, including the design of LAN/WAN hardware: gateways, switches, and routers.

Project Analyst
- Work with sales force to support customers who utilize Experian data.
- Requires strong background in programming and analytical studies (SAS, TSO, JCL).

SYSTEMS

Database Administrator
- Support a 2+ terabyte "mission critical" DB2 database in a team environment.
- Evaluate system performance & insure database integrity.

Systems Programmer
- Installation and customization of vendor software products using SMP/E, JCL and TSO.
- Manage the multi-system MVS computer software and mainframe hardware environment

Systems Administrator
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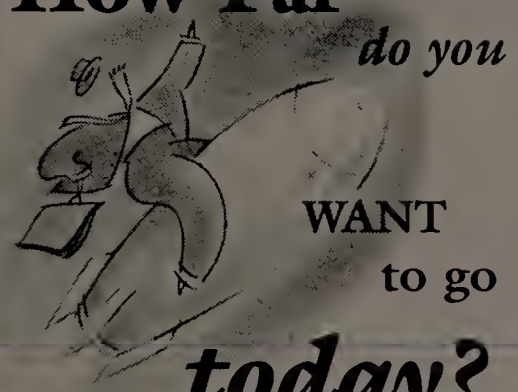

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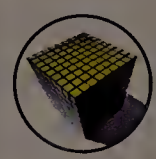

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Challenging Information Services position available for an applications development director who has extensive experience in large health care organizations. We are seeking a talented individual who has demonstrated successful design and implementation responsibility for both in-house development as well as vendor provided software in a complex IBM mainframe environment. This person will have had significant administrative and managerial responsibilities including direct supervision of Project Team Leaders. Qualifications include a bachelor's degree in Computer Science or Business Administration and a minimum of 10 years broad based experience in data processing with a minimum of 3 years as senior supervisor of applications development. Additional pluses are knowledge of SMS' SIGNATURE, ADABAS/NATURAL, COBOL, CICS, Oracle, and Windows development tools. Please reference position #DAD.

Data Analyst/Medical Informatics

Ochsner is seeking an experienced Information Services administrator to develop data access and reporting facilities for a large physician group practice. Data analytical experience with medical management, HEDIS, health care practice management and financial systems is required as is experience with both in-house developed as well as vendor provided software in complex network and mainframe environments. This person will have extensive data modeling experience and demonstrated ability to design and develop systems facilitating end-user access to data. Qualifications include a bachelor's degree in Computer Science, Business, or Finance Administration and a minimum of 10 years broad based experience in data processing with a minimum of 3 years responsibility for data analysis systems. Additional pluses are knowledge of SMS' SIGNATURE, ADABAS/NATURAL, COBOL, CICS, Oracle, and SQL or other data query tools. Please reference position #DMI.

Ochsner offers an excellent salary and benefits package, plus the opportunity to work with a progressive team of IS professionals. Ochsner Clinic offers a challenging environment in which individual performance is valued and rewarded. Please send confidential resume and salary requirements to Ochsner Clinic, Employment-reference position #, 1514 Jefferson Highway, NOLA 70121 or fax resume to (504) 842-7811.
Ochsner Clinic

Systems Analyst, Senior needed for NJ Comp Consulting Co for NJ work site. Must have 6yr exp analyzing/dsgng/prgmg/ qlty ctrl testing & user training for applic systms such as gen'l fin'l/shipping/healthcare/mftr & info systms; providing estimation & solutions to yr 2000 problems using IBM AS/400 system toolset & dsgng GUI's w/MS Visual Basic. Must have BS-Comp Sci. Salary $70K range. Respond to: HR Dept, Patel Consulting Corp, 1525 Morris Ave, Union, NJ 07083.

Network Administrator wanted for Bristol, PA Computer Services Co. Must have 1yr exp installing/configuring interface boards, file servers & work stations incl LAN's, WAN's & PC's; operations tests, maintenance testing & trouble shooting; provide tech support for Win, Win95, WinNT, Novell & UNIX. Masters-Comp Sci, Comp Engg or Electrical Engg. Send resume to: HR Dept, Next Generation Technology Inc, 121 Pond St, Bristol, PA 19007.

Software Engineer: Research, design, develop comp software systems for business/scientific apps applying principles/techniques of comp science, engineering, mathematical analysis, relational database, C, C++, SQL, ESQLC, PL/SQL, SQL*Plus, Oracle Forms, Powerbuilder, HTML, Distributive Systems, Parallel Algorithms; analyze software req to det feasibility of design within time/ cost constraints, interacting w/ other professionals for interface, performance, operational specs; formulate, develop, design, test software, procedures, programming, maintenance, documentation; coordinate installation. Job is in Pompano Beach, FL. Req: Master's in Computer Science + 4 yrs exp or 4 yrs as System Administrator &/or Programmer Analyst. $47,923/yr, 40hrs, 9am-5pm. Submit resume to: FDLES Bureau of Operations, 1320 Executive Center Dr., Suite 110, Tallahassee, FL 32399-0667. Re: JO# - FL 1719701.

Sr. Software Consult. Wanted in greater Phila. area. Must have 5 yr exp w/UNIX systm & admin prgmg (C & shell tools), performance tuning, UNIX networking & security configuration, incl: DNS, Web, Proxy & Firewall; configuration network & peripheral devices; cross-platforming integration of UNIX & Win NT. Employer willing to train on Win NT. Bach-Comp Sci or Electrical Engg. Must be willing to travel to client sites in greater PA. Respond to Universal, PO Box 382, Marlton, NJ 08053.

User Support Analyst. $38K/yr. 8a-5p, 40hr/wk. Provide oral/ written communication of systms & s/ware mgmt & dvlpmnt to Co's client. Manage & coordinate activities of Co's comp prof'l by analysing, diagnosing, reporting & resolving systms & s/ware problems. Research, study & write tech comp instructions, processes, manuals & procedures. Must have Masters w/a mjr in Comp Sci or engg; Bus Admin or Accountancy; Info Sci or Technology. In lieu of Masters in specified fields of study, the applicant can have a bachelors in specified fields of study + 2yrs exp in job offd or related occupation of comp systms or s/ware profl. Job loc in Lawrenceville, GA. Send resume or apply in person at: GADOL, JO#GA6178115, 1535 Atkinson Rd, Lawrenceville, GA 30243-5601 or nearest DOL Field Srvce Office.

SOFTWARE ENGINEER to design, develop, analyze, test, implement, maintain and support financial application software systems in an object-oriented environment using MS Visual C++, Visual Basic, MFC, OLE, Active X, Rational Rose, multi-threading, COM, DCOM, MS Transaction and MS Internet Information Server on Windows 95/NT platforms; Write SOL procedures for data access against MS SQL Server and ORACLE. Require: M.S. degree in Computer/Electrical Engineering with one year of experience in the job offered or in the related occupation of Senior Programmer; Extensive paid travel (50%) on assignments to client sites within the U.S. Salary: $57,500/year; M-F 8:30 a.m. to 5:00 p.m. Send resume to: Elizabeth Haney, P.M.S.C., Box 10/1 P.M.S.C. Center (Int. I-77 & U.S. 21 N.), Columbia SC 29016; Attn: Job MK.

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SOFTWARE QUALITY ASSURANCE ANALYST

The Mouse Genome Informatics Group at The Jackson Laboratory has an opening for a software quality assurance analyst. Our group develops biological databases of the laboratory mouse and software tools used by scientists worldwide who need to work with this information.

Applicants must be energetic, imaginative, and ready to participate in a highly interdisciplinary environment combining biology and computer science. We are seeking intermediate-level applicants possessing skills in software testing including test planning/management, writing and running test procedures, and test data creation and maintenance. Interest in Biology and familiarity with relational databases (ideally Sybase), SQL, UNIX, and some scripting language required. Knowledge of HTML, web interfaces, and Biology desirable.

The Jackson Laboratory is one of the world's foremost centers for mammalian genetics research. Located in Bar Harbor, Maine, the lab is adjacent to Acadia National Park. Mountains, ocean, forests, lakes, and trails are all within walking distance.

The Jackson Laboratory

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CONSULTANT (OPERATIONS RESEARCH ENGINEER)
Design and develop advanced decision support systems using network modeling, sequential/parallel optimization methods, combinatorial algorithms and mixed integer programming. Implement advanced decision support systems in C and Fortran on UNIX platforms. Identify and develop conceptual solutions for solving large-scale network problems using advanced mathematical programming techniques, mathematical rationales that support constructing efficient quantitative representations and solutions, methodologies and techniques to restructure mathematical models into new quantitative representations that are smaller and can be solved separately, and advanced, intuitive and systematic schemes to search for solutions to make mathematical models manageable and controllable. Develop solution systems using optimization packages, numerical methods and applied math techniques. Requires an M.S. in Operations Research, Engineering or Applied Mathematics or Computer Science or Management Information Systems and one year experience in job offered. University level project experience may be substituted for experience in job offered. 40 hour work week. $44,800 per year. Apply at the Texas Workforce Commission, Fort Worth, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701. J.O.# TX7858288. Ad Paid by An Equal Opportunity Employer.

INDUSTRIAL ENGINEER
Design and develop solutions using human-centered design techniques, human-computer interface design, needs/task analysis, usability testing, project scheduling, process planning, software development and systems implementation. Provide human-centered design techniques and ergonomic application development to systems design groups. Develop graphical user interfaces using Visual Basic in Windows environment. Requires an M.S. in Industrial Engineering or Computer Science or Management Information Systems and one year experience in job offered. Experience to include 6 months experience with wireless systems automation. 40 hour work week. $43,000 per year. Apply at the Texas Workforce Commission, Fort Worth, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX7858287. Ad Paid by An Equal Opportunity Employer.

Software Engineer (PeopleSoft Specialist) - Multiple Openings
Structured systems analysis, design, development, modification, testing, quality assurance, implementation, integration, maintenance and support of large volume online complex integrated client-server based financial and human resource management application systems in a multi-hardware/multi-software environment using centralized or distributed Relational Database Management Systems (RDBMS) such as DB2, Oracle, Sybase, SQL Server, SQL Base and related software. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Programmer Analyst/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B. A includes PeopleSoft Financials, PeopleSoft Human Resource Management and B includes PeopleTools, PeopleCode, SQR, Crystal Reports, COBOL; High mobility preferred. 40 hrs/week, 8 am - 5 pm. $49,000 - $75,000 per year. Qualified applicants should contact or send resume to Mr. Clement Pizzutelli, Manager, Connellsville Job Center 1051 Morrell Ave., P.O. Box 868, Connellsville, PA 15425 Refer to Job Order # 8031324.

Multiple positions available for Programmer Analysts. Responsibilities include systems analysis, design, development and implementation of trucking related transportation industry software utilizing RPG/400, CL/400, SQL/400, SDA, RLU, and Query/400 languages and utilities on AS/400 computing environment. Applicant must have Bachelor's Degree in computer science, computer technology, or related programs. Applicant must have one year of experience in the job offered or one year of experience as a Programmer Analyst utilizing RPG/400, CL/400, SQL/400, SDA, RLU, and Query/400 languages and utilities on AS/400 computing environment. Must have legal authority to work in the United States. Work schedule of 40 hours per week, Monday through Friday, from 8:00 a.m. to 5:00 p.m. Salary ranging from $42,000.00 to $45,000.00 per annum. Equal Opportunity Employer. Submit resume and references to Oklahoma State Employment Service, 13401 N. Santa Fe, Edmond, Oklahoma 73114, (ID #5513), Phone (405) 752-5627. Refer to Job Order #'s: 297695, 297696, and 297603.

Senior Software Engineer (Irving, TX) Dvlp & implement designs, hierarchies, memos & table forms utilizing advanced knowledge of software engineering concepts; work on designs & coding systems, analyze software rqmts to determine feasibility of design w/n time & cost restraints & formulate & design software systems; dvlp software system testing procedures, prgmg & documentation, in addition to consulting w/customers concerning maintenance of software system; plan' & prep. tech. reports, memos & instructional manuals relative to operation of prgm in system. Technology incl. Informix & ESQL/C. Req Bachelor in Comp. Sci. or Comp. Engineering + 2yrs' exp in related occupation as Software Engineer. 40hrs/wk, 8-5, $60K/yr. Apply at TX Workforce Commission, Dallas, TX or send resume to TX Workforce Commission, 1117 Trinity, Rm. 424T, Austin, TX 78701, JO#TX0240934. Ad paid by an equal opportunity employer.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Oracle 7.0, Pro*Cobol, Motif and Unix. Requirements: Bachelor's degree in computer science or related field, two years experience as software engineer, and knowledge of Oracle 7.0, Pro*Cobol, Motit and Unix. Salary: $50,000/year. Working conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: PA Job Center, 350 N. Fourth Street, Indiana, PA 15701. Job No. 9077368.

ANALYST PROGRAMMER required for designing, coding and testing of applications software in C++ and COBOL and peforming server administration and database configurations on mainframe, UNIX and Windows NT platforms. Bachelor's required in Math, Computers, Engineering or any related field of study, plus 1 year of experience in any occupation with job duties described above. Must have proof of legal authority to work in the U.S. Salary: $45,000/yr. for a 40 hour work week. Resume to Shirley Gregory, Missouri Division of Employment Security, 1411 Main St., Kansas City, MO 64105-2187. Refer to Job Order #545191. Ad paid by An Equal Opportunity Employer.

OPERATIONS RESEARCH ENGINEER
Design and develop UNIX-based applications for scheduling and optimization systems. Design and develop decision support systems, including expert systems capable of analyzing large amounts of data. Mathematical problem modeling. Estimate future trends using scientific forecasting techniques and application of deterministic and stochastic solution methodologies. Customize systems to meet client-specific needs. Test optimization models. Analyze system performance in order to troubleshoot problems and improve system efficiency. Requires a B.S. in Industrial Engineering, or Operations Research and one year experience in job offered. University level project work may be substituted for work experience. 40 hour work week. $38,000 per year. Apply at the Texas Workforce Commission, Fort Worth, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX0241701. Ad Paid by An Equal Opportunity Employer.

Software Consultant [10 openings] [J.O.N. 9077167] Consult with clients to define their data processing and computer systems needs; analyze current procedures and computer systems used; recommend and implement software and hardware solutions; and use PowerBuilder and either Oracle or Sybase Database. Reqs. 1 yr. Exp. in the job offered and Master's Degree in Computer Sci., Systems Anal., Comp. Information Sys., Comp. Engg., Electronic Engg., Electronic and Communication Engg., Electrical Engg., Civil Engg., or Mathematics or its equivalent in educ. and exp. Will accept a Bachelor's degree, or a foreign equivalent degree, followed by at least 5 yrs. of progressive exp. in the computer software specialty in lieu of the req. educ. and exp. 40 hr./wk. 8a-5p, M-F, $65,000.00/yr. Send resume with J.O.N. to Mr. Terry Faust, Washington Job Center, 75 East Maiden St., Washington, PA 15301.

OPERATIONS RESEARCH ANALYST
Analyze, design and develop algorithms and other mathematical representations of decision variables to create statistical forecasting and decision support models. Use C/C++ with relational database languages to develop decision support applications designed using stochastic and mathematical modeling techniques and statistical analysis software to test and validate the models. Requires a Master's in Operations Research, Computer Science or Engineering and one year experience in job offered. 40 hour work week. $40,000 per year. Apply at the Texas Workforce Commission, Fort Worth, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX7858291. Ad Paid by An Equal Opportunity Employer.

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Real-time Software Engineer: Monday through Friday; 8:30 a.m. to 5:00 p.m.; 40 hours per week; $50,000 annually. Required is a Master of Science Degree in Electrical Engineering and three (3) years of experience in the position being offered (i.e., Real-time Software Engineer) **OR** three (3) years of experience in the related occupation of Software Engineer. As part of the required experience in the position being offered or in the related occupation, the applicant must have had experience in real-time software design and development, including design, implementation, testing and maintenance; had experience in digital signal processing, digital signal processor, digital hardware, C and Assembly language and had experience in the following: Unix, X windows, and real-time operating systems. Develops real-time software design process based on Object Oriented Analysis and Design methodology (OOAD) for manufacturer of medical diagnostic equipment. Analyzes, designs and develops real-time software of multiprocessor gradient generation subsystem to generate gradient signal for the company's MR (Magnetic Resonance) system by using OOAD methodology. Works with system engineer and hardware engineer to conduct new algorithm development, system analysis, system design, hardware design, and software design. Generates software requirement documents and software design documents. Conducts new feature development, testing, maintenance and enhancement to increase the performance of current system. Utilizes various CASE tools such as Rational Rose OOAD case tool, CM, HTML in connection with system analysis, software design, documentation, and implementation, Engages in software debugging, testing and troubleshooting. Utilizes digital signal processor (TMS320C40) and develops application and drivers code for the network communication of multi-processor system. Codes applications with C++, C, and TMS32030 Assembly language. Integrates the gradient generation subsystem into the current MR systems. Interested applicants submit two (2) resumes to: DWE-ALC, c/o: Mike Brooks, P.O. Box 7972, Madison, WI 53707-7972, Case #C100255 AN EMPLOYER PAID AD

Sr. Software Engineer: (Pittsburgh, PA; Colorado Springs CO; & other U.S. client sites) Analyze, & prototype client/server application systems & graphical user interfaces. Design & develop Windows-based applications using Windows SDK, C, Visual C++ (w/object-oriented design), & relational Application Programming Interfaces (API) on Windows platforms Environment: Unix; Windows NT; C; Visual C++, Informix; ODBC; API. BS in Comp. Sci. or Math or Engg + 5 years exp in job offered or Master's degree in stated fields of study + 2 years exp. $63,500K/yr; 40 hrs/wk 8-5. Send resume to: Mr. Tom Dembosky, Mgr., Ofc of Employment Security; 350 N. Fourth St.; Indiana, PA 15701. JO # 6015483

Developer of Building Design Systems located in Mass. seeks Vice President Research and Development. DUTIES: a) direct R&D for enhancements & new applications of ARGOS-VERTEX CAD/CAM software; b) direct development of new ARGOS-VERTEX applications for new business areas & products; c) supervise development engineers & consultants; d) manage customer development & consulting projects. SALARY: $100,000 pr yr. REQUIREMENTS: M.S. in Mech. Engineering plus 6 yrs experience as Director of R&D or Director of Software Engineering, incldg. development & engineering of CAD/CAM systems and ARGOS-VERTEX CAD/CAM software. SEND applications/resumes in duplicate to: Case no. 71372, P.O. Box 8968, Boston, MA 02114.

Systems Analyst - client sites in Atlanta, GA & Co. loc in Marietta, GA. Analyze, design, develop & implement applications; provide technical support. Utilize DB2, COBOL, CICS & JCL s/ware. Supervise programmers. Bachs/Engg, Math, Comp. Sci. 2yrs/exp. in job offered or 2yrs as Engineer &/or Programmer. Exp. in job offered or related occ. must incl. 1 yr using DB2, COBOL, CICS & JCL. Must be willing to travel 40% of time. Several openings avail. 40hrs/wk (8-5; M-F) 52,000/yr. Report or send two resumes to: Georgia Dept. of Labor, Job Order #GA 6179550, 465 Big Shanty Rd, Marietta, GA 30066-3303 or the nearest Dept. of Labor Field Service Office. Must have proof of legal authority to work in the U.S. An employer paid ad.

SOFTWARE ENGINEER
Design, develop and implement systems in C/C++ using systems and software engineering principles, client-server technology and object oriented methodology. Develop and implement graphical user interfaces using X-Motif toolkit. Requires an M.S. in Computer Science and one year experience in job offered. University level project experience may be substituted for experience in job offered. 40 hour work week. $41,000 per year. Apply at the Texas Workforce Commission, Fort Worth, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O.# TX7858283. Ad Paid by An Equal Opportunity Employer.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Powerbuilder 5.0, Oracle, Erwin, PFC and C. Requirements: Bachelor's degree in computer science or related field, four years experience as software engineer, and knowledge of Powerbuilder 5.0, Oracle, Erwin, PFC and C. Salary: $53,000/year. Working conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: PA Job Center, 1270 N. Water Street, PO Box 759, Kittanning, PA 16201. Job No. 1015677.

Software Consultant [10 openings] [J.O.N. 9077169] Consult with clients to define their computer systems and software needs; analyze clients' current procedures; design and implement software and hardware solutions; and use C++, SQL and Rational Rose Case Tool. Reqs. 1 yr. Exp. in the job offered and a Master's Degree in Computer Sci., Systems Anal., Comp. Information Sys., Comp. Engg., Electrical Engg., Civil Engg., Electronic Engg or Mathematics or its equivalent in educ. and exp. Will accept a Bachelor's degree, or a foreign equivalent degree, followed by at least 5 yrs. of progressive exp. in the computer software specialty in lieu of the req. educ. and exp. 40 hr./wk., 9a-5p, M-F, $80,000.00/yr. Send resume with J.O.N. to Mr. Tom Rusnack, Manager, Charleroi Job Center, 10 Paluso Dr., PO Box 210, Charleroi, PA 15022.

Database Design Analyst to design & develop GUI applications; design d/base applying knowledge of d/base design standards; determine if client requires new series of programs or modification of existing programs which access d/base; develop data model explaining data elements & their use; write description of how to access d/base for user; design & develop applications using appropriate languages & tools; Reqs. Master's in Comp. Sci., Comp. Engg. or Comp. Info. Systems; 6 mos exp in job offered or 6 mos related exp such as Sr. Programmer Analyst, S/ware Engr. Or D/base Admin. Must be willing to relocate at employer's expense; $29/hr, 40 hrs/wk 8a-5p. Apply at Texas Workforce Commission, Dallas, TX or send resume to Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, TX 78701, J.O. #TX0240862 "Ad Paid by an Equal Opportunity Employer"

Programmer Analyst [J.O.N. 8031336] [10 Openings] Plan, develop, test and document computer programs; evaluate user requests for new or modified programs; using Oracle case, Oracle Forms, Oracle Reports and Pro*C. Reqs. 1 yr.'s experience in the job offered and a Bachelor's Degree in Computer Science, Systems Analysis, Computer Information Systems, Computer Applications, Computer Engg., Electrical Engg., Electronic Engg., Electronics and Communication or Mathematics or its foreign educ. equivalent. 40 hr./wk., 8a-5p, M-F, $63,000.00/yr. Send resume along with J.O.N. to Mr. Richard Introcaso, Actg. Mgr., Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

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Programmer Analyst. Analyze, design, develop & modify applications. Knowledge of COBOL, CICS, IMS or DB2 required. 2 yrs experience required. Send resume to C. Chiodo (azpr), The Reohr Group Inc., 676 E. Swedesford Rd, #200, Wayne, PA 19087.

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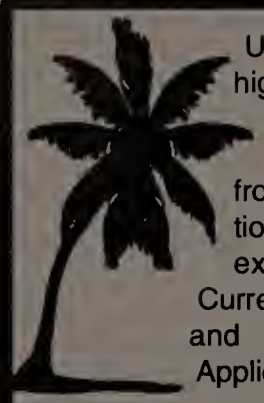

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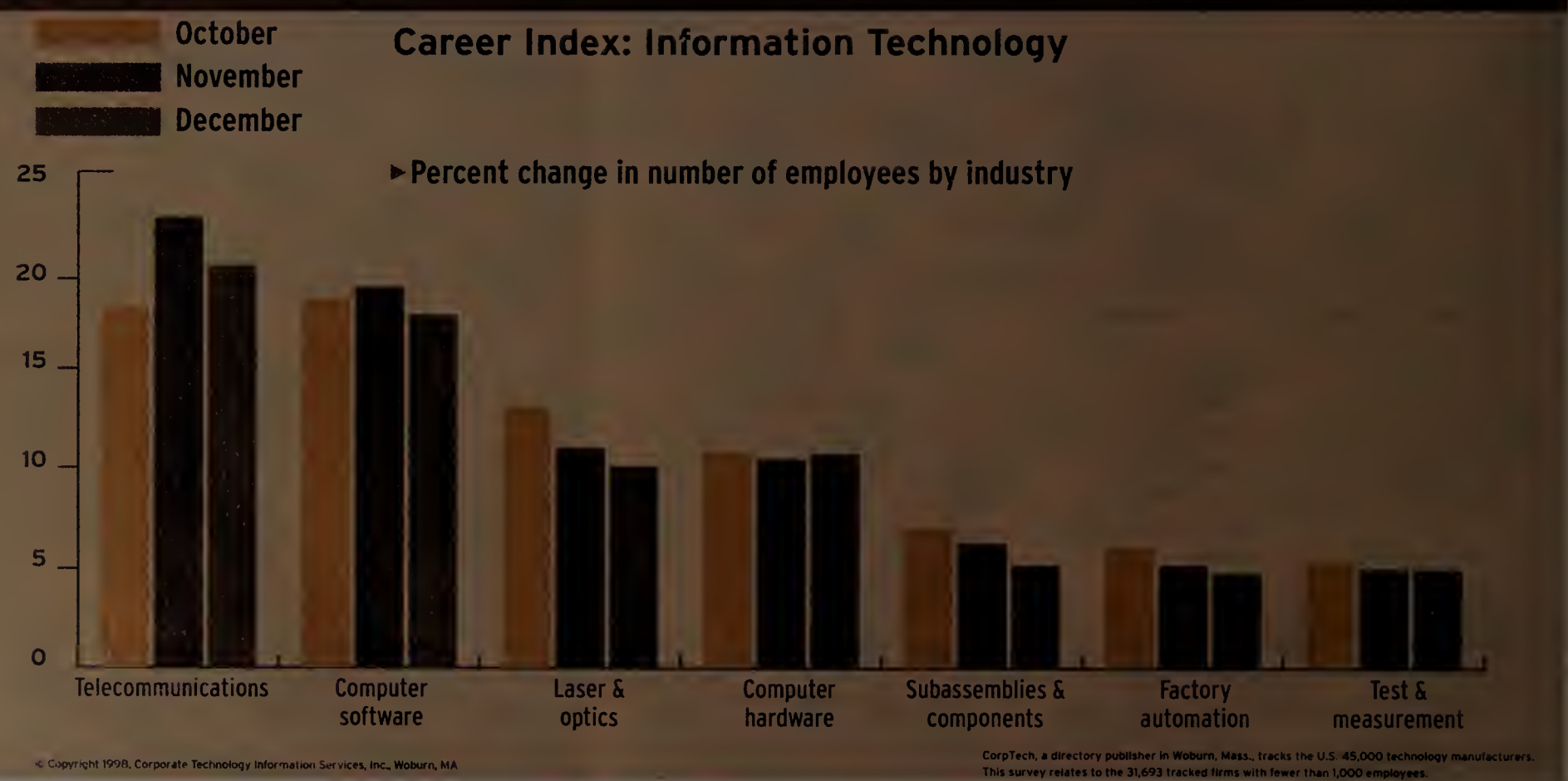

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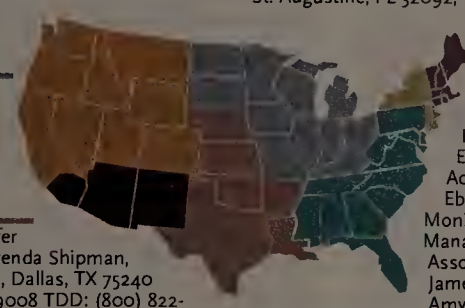

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Compuware Corp.	1.88
Comshare Inc.	1.75

Losers

PERCENT

Adaptec Inc.	-42.5
Cayenne Software Inc.(L)	-33.3
Forte Software(L)	-23.3
Creative Technology Ltd.	-22.8
Netscape Comm. Corp.(L)	-21.9
Lycos Inc.	-17.4
Quantum Corp.	-17.0
FTP Software Inc.	-16.5

DOLLAR

Adaptec Inc.	-15.88
Lycos Inc.	-6.94
Amazon.com	-6.88
Arbor Software	-6.38
Lattice Semiconductor	-6.19
Northern Telecom Ltd.	-5.88
Newbridge Networks Corp.	-5.75
Texas Instruments	-5.69

INDUSTRY ALMANAC

PC retailers respond to threat

Computer retailers are scrambling to adjust as buyers also look to direct PC suppliers and superstores to meet their computing needs.

As a result, investors may see more signs of hope in what could have been a bleak 1998 investment picture.

CompUSA, Inc. (NYSE:CPU) in Dallas has fared better than most in this segment. This month, its stock price has partially rebounded from a downward trend during the latter part of 1997. "CompUSA has bucked the trend for a long time" by continuing to post strong results in the face of tough competition in the retail market, says John Lawrence, an analyst at Morgan Keenan & Co., a Memphis brokerage.

In fact, CompUSA has beat earnings expectations in 12 of the past 13 quarters, even as electronics superstores such as Circuit City Stores, Inc. (NYSE:CC) muscle in on computer sales.

Egghead, Inc. (Nasdaq:EGGS), on the other hand, has taken longer to revamp its strategy and has seen its stock price suffer as a result (see chart). The rise of large computer stores such as Circuit City continues to erode Egghead's market share, according to a report from Hoover's, Inc. in Austin, Texas.

Spokane, Wash.-based Egghead has responded by building much larger stores and increasing its PC hardware inventory. It is also counting on its successful World Wide Web site (*www.egghead.com*) for a larger portion of its sales.

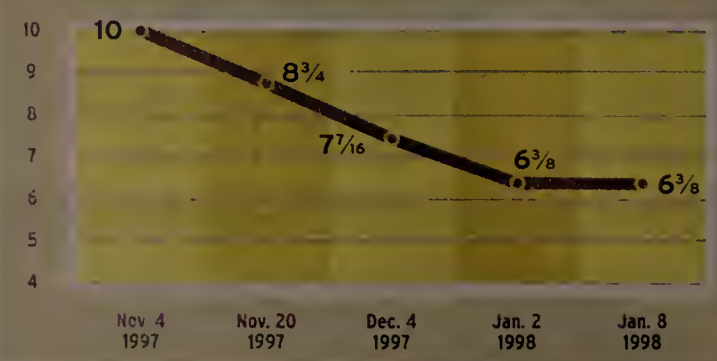
And though the turmoil in the Asian financial markets could lower PC prices, some analysts say that won't create enough consumer demand to turn things around right away.

"It's tempting to proclaim that this new lower price point will drive a rash of first-time buying by lower income families, but price alone won't do the trick," says Mark Nelson, general manager of consumer research at Computer Intelligence, a La Jolla, Calif., consultancy. Instead, vendors also will have to fine-tune their marketing programs, he says.

— Tim Ouellette

SCRAMBLED EGGS?

Egghead is looking to turn around its stock performance



Exch	52-Week Range			Jan. 9 2PM Close	Wk Net Change	Wk Pct Change
Communications and Network Services						**OFF 0.82%**
COMS	78.25	24.00	3 COM Corp.	30.50	-5.50	-15.3
AIT	86.25	55.25	AMERITECH Corp.	81.38	-0.50	-0.6
ASND	80.25	22.00	Ascend Communications	27.00	1.13	4.3
T	64.00	30.75	AT & T (H)	61.38	2.56	4.4
BNYN	5.63	1.19	Banyan Systems Inc.	3.19	0.06	2.0
BAY	41.88	15.38	Bay Networks Inc.	25.94	-0.69	-2.6
BEL	92.88	56.75	Bell Atlantic Corp. (H)	88.75	-2.19	-2.4
BLS	58.13	38.13	Bellsouth Corp.	56.50	-0.25	-0.4
BRKT	27.75	9.25	Brooktrout Technology	12.13	0.19	1.6
CS	46.50	13.25	Cabletron Systems	13.56	-2.19	-13.9
CGRM	21.88	8.63	Centigram Communications	15.63	-1.00	-6.0
CSCO	60.63	30.19	Cisco Systems Inc.	55.31	-2.75	-4.7
CMNT	7.00	3.31	Computer Network Tech.	4.50	0.56	14.3
DIGI	32.75	17.75	DSC Communications	22.63	-1.88	-7.7
FORE	35.75	10.00	FORE Systems Inc.	15.94	-0.38	-2.3
GDC	11.38	3.25	General Datacomm Inds.	4.25	-0.38	-8.1
GSX	53.00	36.13	General Signal Networks	39.63	-2.13	-5.1
GTE	52.25	40.50	GTE Corp.	50.56	-0.25	-0.5
LU	90.75	44.75	Lucent Tech.	75.88	-3.94	-4.9
MADGF	16.13	3.75	Madge Networks NV	4.09	-0.09	-2.2
MCIC	45.00	27.31	MCI Communications Corp.	42.69	0.00	0.0
NETM	6.56	2.09	NetManage Inc.	2.88	-0.31	-9.8
NTRX	7.00	0.63	Netrix Corp. (L)	2.19	1.13	105.9
NCDI	16.25	5.88	Network Computing Devices	9.38	-1.25	-11.8
NWK	22.38	11.25	Network Equipment Tech.	14.00	-1.06	-7.1
NN	69.38	27.25	Newbridge Networks Corp.	29.69	-5.75	-16.2
NT	113.88	62.13	Northern Telecom Ltd.	86.69	-5.88	-6.3
NOVL	13.00	6.28	Novell Inc.	7.53	-0.59	-7.3
ODSI	19.25	5.19	Optical Data Systems Inc.	6.63	-0.06	-0.9
PCTL	26.13	5.63	Picturetel Corp.	5.97	-1.03	-14.7
PTON	3.69	1.03	Proteon Inc. (L)	1.22	-0.03	-2.5
RACO	4.88	1.00	Racotek Inc.	1.56	0.00	0.0
RETX	7.63	3.38	Retix	4.88	-0.13	-2.5
SBC	76.13	49.25	SBC Communications	72.00	-2.94	-3.9
SFA	24.94	14.25	Scientific Atlanta Inc.	16.56	-1.56	-8.6
SHVA	35.13	8.06	Shiva Corp. (L)	9.75	0.78	8.7
FON	60.63	38.38	Sprint Corp.	56.88	-1.13	-1.9
SMSC	18.13	8.00	Standard Microsystems Corp.	8.75	0.13	1.4
USW	46.94	31.13	U S West Inc.	46.19	0.06	0.1
XIRC	31.13	7.50	Xircom	9.75	-0.63	-6.0
XYLN	37.25	12.38	Xylan Corp.	15.56	0.00	0.0
PCs and Workstations						**OFF 1.17%**
AAPL	29.56	12.75	Apple Computer Inc.	18.50	2.25	13.8
CPQ	79.56	28.50	Compaq Computer Corp.	57.44	-2.19	-3.7
DELL	103.88	27.25	Dell Computer Corp.	84.75	-1.00	-1.2
GTW	46.25	19.38	Gateway 2000 Inc.	32.69	-1.50	-4.4
HWP	72.94	48.13	Hewlett Packard Co.	63.50	-1.06	-1.6
MUEI	25.38	8.75	Micron International Inc.	8.97	-0.41	-4.3
NIPNY	74.00	48.63	NEC America	55.00	1.38	2.6
SGI	30.31	11.56	Silicon Graphics (L)	11.56	-1.25	-9.8
SUNW	53.31	25.88	Sun Microsystems Inc.	40.69	-0.81	-2.0
Large Systems						**OFF 5.34%**
DGN	37.94	15.00	Data General Corp.	16.88	-1.06	-5.9
DEC	53.81	25.00	Digital Equipment Corp.	36.75	-2.13	-5.5
IBM	113.50	63.63	IBM	101.13	-4.50	-4.3
MDCD	7.75	2.88	Meridian Data Inc.	3.88	-0.19	-4.6
PRCM	20.13	9.75	ProCom Technology, Inc.	13.56	-1.69	-11.1
SQNT	31.25	14.50	Sequent Computer Sys.	18.50	-3.56	-16.1
TEXM	6.00	2.06	Sequoia Systems Inc.	4.25	-0.13	-2.9
SRA	60.75	26.38	Stratus Computer Inc.	36.25	-3.06	-7.8
UIS	16.50	5.75	Unisys Corp.	15.06	1.38	10.0
Software						**OFF 2.74%**
ADBE	53.13	32.50	Adobe Systems Inc.	41.38	0.88	2.2
AMSWA	15.63	5.38	American Software Inc.	9.00	-0.88	-8.9
APLX	26.50	3.13	Applix Inc.	5.19	-0.75	-12.6
ARSW	53.25	17.00	Arbor Software	34.88	-6.38	-15.5
ADSK	51.13	28.25	Autodesk Inc.	36.38	-1.13	-3.0
BGSS	38.00	23.75	BGS Systems Inc.	35.25	1.13	3.3
BMCS	71.25	39.63	BMC Software Inc.	60.63	-4.31	-6.6
BOOL	35.25	19.63	Boole and Babbage	28.69	-1.06	-3.6
BORL	12.19	5.88	Borland Int'l Inc.	7.41	-0.28	-3.7
BOBJY	15.75	6.63	Business Objects	10.19	-1.31	-11.4
CAYN	6.25	1.50	Cayenne Software Inc. (L)	1.50	-0.75	-33.3
CNTR	5.88	0.88	Centura Software (L)	1.25	0.13	11.1
CHKPF	50.50	16.25	Checkpoint Software Technologies	35.63	-4.88	-12.0
COGNF	35.00	17.63	Cognos Inc.	21.63	-0.88	-3.9
CA	57.50	24.88	Computer Associates	51.19	-3.38	-6.2
CVN	9.63	1.94	Computervision Corp.	4.00	0.19	4.9
CPWR	39.50	12.25	Compuware Corp.	34.25	1.88	5.8
CSRE	18.88	4.25	Comshare Inc.	7.88	1.75	28.6
COSFF	8.25	1.40	Corel Corp.	2.00	0.06	3.2
DWTI	6.63	2.25	Dataware Technologies Inc.	3.13	-0.06	-2.0
FILE	34.31	9.50	Filenet Corp. (H)	34.31	4.25	14.1
FRTE	38.25	5.56	Forte Software (L)	5.75	-1.75	-23.3
FTPS	8.38	1.50	FTP Software Inc.	2.06	-0.41	-16.5
HUMCF	54.25	22.00	Hummingbird Comm. Ltd.	32.75	0.63	1.9
HYSW	46.00	13.00	Hyperion Software Corp.	32.13	-4.13	-11.4
IRIC	20.00	11.75	Information Resources	13.41	-0.34	-2.5
IFMX	24.38	4.00	Informix Corp. (L)	5.16	-0.47	-8.3
INGR	14.19	6.25	Intergraph Corp.	9.31	-0.19	-2.0
LEAF	4.00	0.81	Interleaf Inc.	3.50	0.06	1.8
ISLI	21.25	6.25	Intersolv Inc. (H)	17.13	-2.38	-12.2
INTU	41.81	20.88	Intuit Inc. (H)	36.38	-4.25	-10.5
TLC	20.50	5.50	Learning Co. (The)	14.88	-0.75	-4.8
LGWX	12.88	4.13	Logic Works	8.38	0.25	3.1
MAPS	14.25	7.88	MapInfo Corp	11.38	0.81	7.7
MATH	5.13	2.19	MathSoft	3.03	0.28	10.2
MENT	13.13	6.50	Mentor Graphics	8.69	-1.19	-12.0
MIFGY	43.06	15.38	Micro Focus (H)	43.06	3.06	7.7
MGXI	10.63	4.00	Micrografx Inc.	9.25	0.63	7.2
MSFT	150.75	81.63	Microsoft Corp.	129.25	-1.88	-1.4
OBJS	2.50	0.44	ObjectShare, Inc.	0.63	0.00	0.0
ORCL	42.13	19.25	Oracle Corp.	19.25	-3.75	-16.3
PMTC	64.25	37.50	Parametric Technology	47.38	0.25	0.5
PSFT	39.50	15.31	Peoplesoft (H)	32.81	-5.06	-13.4
PTEC	19.75	11.00	Phoenix Technologies	12.19	0.13	1.0
PSQL	13.75	6.50	Platinum Software	10.13	-0.88	-8.0
PLAT	30.81	10.25	Platinum Technology	24.88	-2.94	-10.6
PRGS	25.25	12.63	Progress Software Corp.	22.66	0.41	1.8
RNBO	30.00	13.75	Rainbow Technologies Inc. (H)	26.75	-2.13	-7.4
REDB	26.50	5.00	Red Brick Systems Inc.	7.63	-0.19	-2.4
ROSS	9.38	1.75	Ross Systems, Inc	3.25	0.19	6.1
SAPE	62.75	30.00	Sapient Corp (H)	60.75	2.50	4.3
SCOC	8.63	3.13	SCO Inc.	4.63	0.31	7.2
SDTI	44.38	21.00	Security Dynamics Tech	36.69	1.69	4.8
SOTA	18.00	8.88	State of the Art	15.75	-0.50	-3.1
SSW	41.69	27.25	Sterling Software Inc (H)	38.88	-1.81	-4.5
SDRC	30.00	15.25	Struct Dynamics Research	24.13	3.00	14.2
SYBS	23.63	8.63	Sybase Inc (L)	8.69	-1.25	-12.6
SYMC	27.75	12.00	Symantec Corp	21.56	-0.31	1.4
SNPS	47.13	21.75	SynOpsys	31.25	3.81	-10.9
SSAX	17.63	3.88	System Software Assoc	9.38	0.25	2.7
SYSF	18.00	4.06	Systemsoft Corp (L)	5.50	-0.69	-11.1
TRUV	5.19	1.50	Truevision Corp.	2.50	-0.25	-9.1
VMRK	11.75	5.75	VMark Software Inc.	8.06	0.19	2.4
WALK	18.25	10.50	Walker Interactive Systems	13.50	-0.06	-0.5
WALL	29.13	11.31	Wall Data Inc.	14.06	0.31	2.3
WANG	25.00	16.00	Wang Laboratories Inc.	21.56	-0.56	-2.5
Internet						**OFF [illegible]**
AMZN	66.00	15.75	Amazon.com	52.63	-6.88	-11.6
AOL	93.19	33.25	America On-Line (H)	86.56	-3.06	-3.4
ATHM	30.63	16.63	At Home Corp.	22.06	-1.94	-8.1
CSRV	14.56	8.88	Compuserve Corp.	12.06	0.00	0.0
EDFY	22.13	8.88	Edify Corp.	16.75	-1.88	-10.1
XCIT	35.00	7.50	Excite, Inc.	32.50	0.56	1.8
SEEK	14.50	4.38	Infoseek Corp.	10.38	-0.03	-0.3
LCOS	42.00	10.88	Lycos Inc.	33.00	-6.94	-17.4
NETC	24.38	7.88	Netcom On-Line (H)	24.25	0.50	2.1
NSCP	59.25	17.75	Netscape Comm. Corp. (L)	18.25	-5.13	-21.9
OMKT	17.38	6.50	Open Market Inc.	10.75	0.25	2.4
PSIX	13.38	4.25	PSINet	6.44	1.06	19.8
QDEK	6.31	1.19	Quarterdeck Corp. (L)	1.94	0.03	1.6
RAPT	23.50	8.88	Raptor Systems	12.38	-1.17	-8.7
SCUR	14.81	4.75	Secure Computing Corp.	10.88	-1.06	-8.9
SPYG	14.13	4.06	Spyglass Inc. (L)	6.00	0.94	18.5
YHOO	71.00	12.63	Yahoo! Inc. (H)	62.88	-3.38	-5.1
Semiconductors						**OFF 6.[illegible]**
AMD	48.50	2.69	Advanced Micro Devices	18.13	-1.19	-6.1
ADI	36.69	20.63	Analog Devices Inc.	25.63	-1.94	-7.0
CHPS	22.38	7.88	Chips and Technologies	15.13	0.63	4.3
CRUS	17.75	8.00	Cirrus Logic	10.19	-1.03	-9.2
CY	18.94	7.38	Cypress Semiconductor Corp.	8.56	-0.63	-6.8
INTC	102.00	62.88	Intel Corp.	73.06	0.44	0.6
LSCC	74.50	39.75	Lattice Semiconductor	43.13	-6.19	-12.5
LSI	46.88	18.63	LSI Logic Corp.	20.25	-1.25	-5.8
MCRL	46.88	13.00	Micrel Semiconductor Inc.	28.00	-1.38	-4.7
MU	60.06	22.00	Micron Technology	27.88	0.00	0.0
MOT	90.50	54.00	Motorola Inc.	55.50	-2.63	-4.5
NSM	42.88	21.63	National Semiconductor	23.06	-3.94	-14.6
TXN	71.25	31.06	Texas Instruments	42.13	-5.69	-11.9
VLSI	38.69	14.88	VLSI Technology	22.19	-1.69	-7.1
XLNX	58.50	28.50	Xilinx	34.75	-3.88	-10.0
ZLG	28.50	17.00	Zilog Inc.	18.94	-0.31	-1.6
Peripherals and Subsystems						**OFF 5.[illegible]**
ADPT	54.25	21.44	Adaptec Inc.	21.44	-15.88	-42.5
APCC	34.38	15.25	American Power Conversion	26.25	1.38	5.5
CREAF	29.38	8.63	Creative Technology Ltd.	16.69	-4.94	-22.8
RACE	23.63	3.00	Data Race Inc.	3.75	0.31	9.1
DTM	12.50	7.88	Dataram Corp.	8.94	-0.19	-2.1
EMC	32.56	15.88	EMC Corp.	25.63	-3.75	-12.8
EMLX	21.25	13.38	Emulex Corp.	15.50	1.25	8.8
ESCC	35.88	22.00	Evans and Sutherland	27.25	-1.13	-4.0
EXBT	16.50	5.63	Exabyte (L)	7.25	0.25	3.6
IISLF	2.63	0.94	Intelligent Info. Systems	1.13	-0.13	-10.0
IOM	16.75	7.06	Iomega Corp.	12.00	-0.38	-3.0
IPLS	2.81	0.94	IPL Systems Inc.	1.34	0.03	2.4
KMAG	35.38	13.50	Komag Inc. (L)	14.06	-1.25	-8.2
MTSi	34.88	13.00	Micro Touch Systems Inc.	14.75	-1.75	-10.6
MTIC	17.88	3.25	MTI Technology Corp.	12.00	-1.00	-7.7
PNCL	7.81	0.13	Pinnacle Micro Inc.	0.16	0.00	0.0
AQM	23.06	2.25	QMS Inc.	2.88	0.19	7.0
QNTM	43.25	14.50	Quantum Corp.	18.88	-3.88	-17.0
RDUS	0.81	0.19	Radius Inc.	0.44	0.06	16.7
SEG	56.25	18.25	Seagate Technology	18.25	-2.38	-11.5
SOS	19.63	5.00	Storage Computer Corp.	6.31	-0.44	-6.5
STK	67.00	33.25	Storage Technology	60.56	-2.06	-3.3
TEK	46.44	32.19	Tektronix Inc.	39.06	-0.31	-0.8
WDC	54.75	14.50	Western Digital Corp.	15.75	-1.50	-8.7
XRX	88.00	52.88	Xerox Corp.	69.94	-4.94	-6.6
Services						**OFF [illegible]**
AMSY	27.75	15.75	American Mgmt. Systems	20.00	1.13	6.0
ANLY	36.50	14.19	Analysts Int'l (H)	29.00	-3.00	-9.4
AUD	62.69	26.56	Auto Data Processing (H)	59.00	-1.00	-1.7
CATP	43.63	21.25	Cambridge Tech. Partners (H)	37.75	-2.75	-6.8
CEN	47.75	29.50	Ceridian Corp.	46.00	0.31	0.7
CDO	34.13	18.38	Comdisco Inc. (H)	31.31	-2.06	-6.2
CPU	38.00	13.25	CompUSA Inc.	29.25	-1.63	-5.3
CHRZ	46.50	16.75	Computer Horizons (H)	40.00	-2.06	-4.9
CSC	87.75	57.88	Computer Sciences	84.25	1.44	1.7
TSK	49.38	16.63	Computer Task Group	35.19	0.00	0.0
EGGS	11.13	3.63	Egghead Discount Software	5.81	-0.56	-8.8
EDS	49.63	29.56	Electronic Data Systems Corp.	43.75	-0.25	-0.6
ICO	39.63	19.75	Inacom Corp.	28.19	-0.81	-2.8
INEL	8.75	2.25	Intelligent Electronics	5.13	-0.06	-1.2
KEA	41.50	14.63	Keane Inc. (H)	37.31	-1.69	-4.3
MICA	29.75	12.31	Microage Inc.	15.00	-0.50	-3.2
PAYX	51.75	25.63	Paychex (H)	47.75	-1.25	-2.6
PMS	70.19	41.50	Policy Management Sys. (H)	68.00	-1.75	-2.5
REY	30.63	13.75	Reynolds and Reynolds	18.25	-0.38	-2.0
SCBI	22.25	10.69	SCB Computer Tech. Inc	17.00	0.25	1.5
SEIC	44.50	18.75	SEI Corp	38.63	-3.81	-9.0
SMS	66.81	36.75	Shared Medical Systems	61.13	-3.94	-6.1
SSPE	33.50	10.00	Software Spectrum Inc.	12.06	-0.69	-5.4
SDS	31.44	18.50	Sungard Data Systems (H)	29.38	-0.56	-1.9
VST	24.88	6.50	VanStar Corp.	12.44	-0.25	-2.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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IT recruiting crisis

CONTINUED FROM PAGE 1

range of recommendations for bolstering IT's ranks.

Also addressing the convocation will be U.S. Secretary of Education Richard Riley and U.S. Secretary of Commerce William Daley.

The task groups formed in September to study the causes of the ongoing high-tech talent crunch. Many government officials consider it a national emergency [CW, Oct. 6].

NATIONAL CAMPAIGN

To address the image problem, researchers are recommending a national marketing campaign similar to the milk industry's highly successful promotion that shows athletes, artists and other positive role models sporting milk mustaches.

"What we're recommending is a publicity campaign [that says] technology is cool, it's the future and it's exciting."
– Paul Cole, IT image task force

"There is an unrealistic image of what IT people do and who they are," said Paul Cole, vice president of the American Federation of Teachers and chairman of the IT image task force. "When we asked them to draw pictures of IT professionals, elementary and secondary students often portrayed IT people as geeky and nerdy."

Cole said the task force also found that vendors often reinforce that negative stereotype in their own advertising.

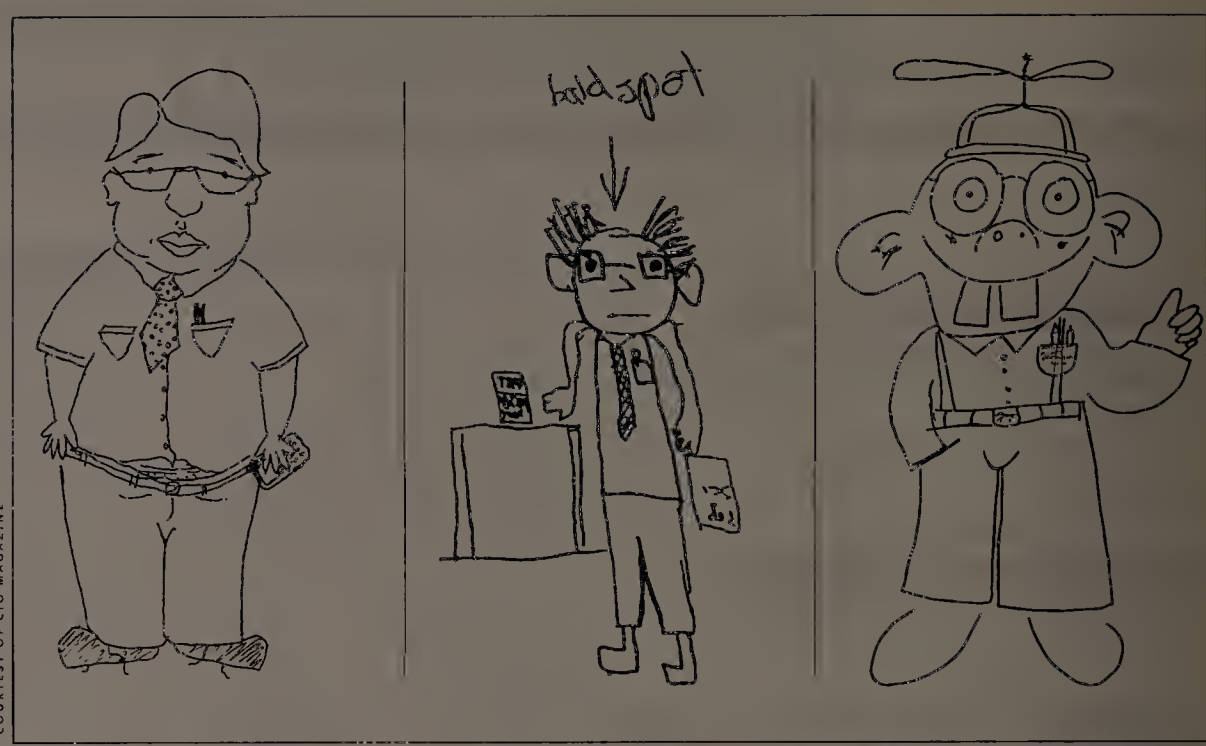
"There are ads by technology and computer companies with people with tape on their glasses and with pointy heads," he said. "What we're recommending is a publicity campaign that has a single overriding message that technology is cool, it's the future and it's exciting."

Another recommendation is that companies reconsider requiring a college degree for many of today's IT jobs.

"There are all sorts of new job categories, such as webmaster and electronic-commerce specialist, that are not likely to be nearly as degree-driven as you would think," said April Young, executive director of Potomac Knowledgeway, a nonprofit organization that promotes IT entrepreneurship in the Washington area. Young also is chairman of the task force studying recruitment of minorities for IT careers.

Young's group is also recommending that IT industry associations play a far more active role in educating students — beginning in elementary school, for example — about careers in IT.

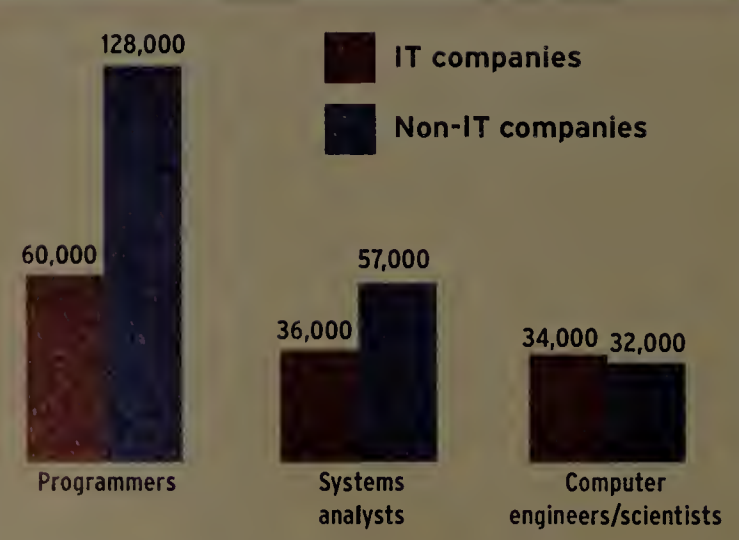
"Our research absolutely confirmed that people don't enter the IT workforce without mentors and exposure to IT as a career," Young said. □



COURTESY OF CIO MAGAZINE

Illustrations by elementary and high school students reveal their perception of IT professionals as frequently geeky, nerdy, socially inept individuals

VACANCIES GALORE



Base: 532 companies with more than 100 employees

Source: ITAA and Virginia Polytechnic Institute Joint Study, January 1998

Group targets software labor shortage

By Thomas Hoffman

THE NUMBERS don't look good: The U.S. will need 137,000 new software workers in each of the next nine years to meet projected demand for software occupations.

Yet the number of bachelor's degrees awarded in computer science has dropped 42%, from 41,889 in 1986 to 24,404 in 1996.

The information technology skills shortage is so bad it could eventually hurt the U.S.'s global competitiveness, according to a report issued by the National Software Alliance last week at its annual conference in Crystal City, Va.

The study, an analysis of recently released figures from the U.S. Bureau of Labor Statistics, said high demand for IT workers and escalating salaries "could lead to inflation in the economy." And "severe understaffing" could lead to lower corporate productivity, the report said.

The National Software Alliance, based in Arlington, Va., was established by the U.S. military to find solutions to the labor crunch and to promote best practices.

One solution is to increase immigration and temporary worker limits, said Norm Brown, director of the alliance. He noted that one technical recruiter from U.S. Robotics in Skokie, Ill., recently returned from a trip to India with 17 technologists in tow "because they couldn't find people [with these skills] in the U.S."

A CHALLENGE

But tying the IT skills shortage to U.S. global competitiveness "is a pretty tall order," said Jim Jones, managing director of the Information Management Forum, an Atlanta-based user group for information systems executives.

Jones predicted the labor shortage will solve itself in three to four years through further breakthroughs in automation and shifting labor pools. □

Tool helps sniff out network snoopers

By Patrick Dryden

SOME ORGANIZATIONS worry that techies armed with network analyzers can snoop on any packet to extract passwords, eyes-only memos and other sensitive data.

Now Network Associates, Inc. in Santa Clara, Calif., is attempting to allay those fears with security options for its Distributed Sniffer System (DSS).

New software for this shared protocol analyzer will limit capabilities for three levels of users. The help desk can view only performance statistics, for example, while troubleshooters and administrators get more power to peek inside packets.

The package also adds an authentication step, requiring a password for access, and then tracks user activity.

"Right now, we can't tell who is running the DSS software," said Brian Leafe, senior technical analyst at Liberty Mutual Insurance Co. in Portsmouth, N.H.

That situation raises "massive concerns" by auditors in financial institutions and the human resources departments of most large corporations, according to Ray Paquet, a management analyst at Gartner Group, Inc. in Stamford, Conn.

Controls in the new DSS software "can alleviate some of the paranoia," Paquet said.

But the safeguards don't apply to the stand-alone Sniffer, the market-leading protocol analyzer found in nearly every network operation center. Someone could still plug that analyzer directly in to the network and decode any packets, Paquet said. □

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COMMENTARY

The Net Generation

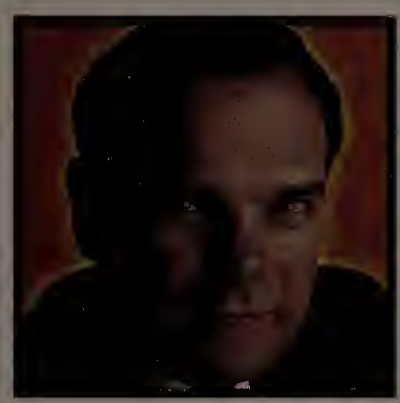
Don Tapscott

We wonder how the digital media is changing business. How big will electronic commerce be? When will it take off? What will the new enterprise look like? What will happen to the brand in an interactive world?

We're sitting on a beach wondering what the weather will be like today. But just beyond the horizon is a 100-ft. tsunami that will sweep us all away if we don't get ready. This tidal wave is the result of the intersection of a demographic revolution and the technology revolution we've all been trying to understand.

Call it the rise of the Net Generation.

The baby boom has an echo, and it's even louder than the original — 80 million strong in the U.S. alone. The Net Generation — children who in 1999 will be between the ages of 2 and 22 — is the largest ever. But it's not their demographic muscle alone that makes them an unprecedented force for change in business. Rather, they are the first generation bathed in bits. To them, digital tools are no more technology than the TV or refrigerator.



After researching these young people for a couple of years, I'm convinced there is no issue more important to IT professionals, marketers and business leaders than understanding this new generation — their culture, psychology, values and how they are changing the world.

The vast majority of adolescents report they know how to use a computer, and almost two-thirds say they have used the Internet. According to Teenage Research Unlimited, the percentage of teens who say it's "in" to be online jumped from 50% in 1994 to 88% in 1997.

Imagine the impact of millions of fresh-thinking, energized youth armed with the most powerful tools in history hitting the workforce. The N-Gen will transform the nature of the enterprise and the way wealth is created, as theirs becomes the new culture of work.

This generation is exceptionally curious, self-reliant, contrarian, smart, focused, able to adapt, high in self-esteem and fitted with a global orientation.

These attributes, combined with Netgeners' ease with digital tools, spell trouble for the traditional enterprise and the traditional manager.

Many modern management concepts, such as teamwork, collaboration, knowledge sharing, organizational learning and networked structures have been hard to implement because of cultural legacies. IS organizations in particular grew up during the heyday of the organization man. Host-based, hierarchical, internally focused computer systems and networks corresponded to the traditional corporate structures and style.

N-Gen culture is the antithesis of all that. Irresistible force meets immovable object. Call it "generational displacement" for a layer of traditional hidebound managers — IS and otherwise.

Moreover, the N-Gen has been told it will be hard for them to find good jobs, so they have developed great determination. A larger proportion will seek to be entrepreneurs. Corporations that hire them should be prepared to have their windows and walls shaken.

In the next six months, I will discuss various aspects of the Net Generation, including how it is transforming our world and the challenges facing IS. □

Tapscott is chairman of the Alliance for Converging Technologies and an authority on the impact of the digital media on the economy. He is the author of six books, including Paradigm Shift *and* The Digital Economy. *His most recent book is* Growing Up Digital: The Rise of the Net Generation *(McGraw Hill Companies, 1998).*

Spotlight on Europe

David Moschella

While most of the world's limited international attention is rightfully focused on the ever-spreading Asian Contagion, Europe will also make its share of headlines this year.

This long-tentative continent is finally taking some bold steps to get back into the IT industry limelight.

With the exception of the U.K., the 1990s have been pretty much a decade of lost opportunity for Europe. The ballyhooed economic integration of 1992 fizzled, as did most of Europe's major economies. Slow growth, high unemployment and declining international competitiveness became the sad watchwords of a generally forgettable era.

In IT, things were even worse. European hardware vendors have all but disappeared. With rare exceptions, such as SAP, most of Europe's software and service providers have also failed to keep pace with bigger and stronger U.S. companies. In 1992, the European IT market was roughly equal in size to that of the U.S. Now, the U.S. is nearly 50% larger. From an Internet perspective, the consensus is that the bulk of Europe is easily several years behind. It can't afford another decade like the '90s.

But improvements may be on the way. Telecommunications deregulation is now the official policy of the European Union. The impact of the reforms should be dramatic.

Unlike the process in the U.S., local, long-distance and international services are being deregulated simultaneously. Perhaps more important, because the whole of Europe has known about the Jan. 1, 1998, changeover date for several years, substantial preparations have been made. Europe's hideously high telecom rates should finally begin to trend down toward U.S. levels.

As important as these changes are, the big news from Europe will come this spring, when the long-talked-about European Monetary Union finally begins to take shape. In May, the exchange rates between participating nations will be fixed in preparation for the Jan. 1, 1999, conversion to the euro as the single European currency.

Although the exact list of participating nations hasn't been determined, the U.K. is likely to be the only major holdout. By year's end, it's likely that many transnational corporations will be effectively doing business in euros. To the surprise of many, it seems that this continentwide conversion has passed the point of no return.

Think of all this from an IS perspective. The list of can't-fail projects is scary — changing telecom services and prices, a massive conversion to a new financial system, a still-worrisome year 2000 prevention effort and the increasingly recognized need to catch up with the U.S. in business Internet use.

As if these tasks weren't enough, the European IS community faces the additional challenge of budget restrictions substantially tighter than those in the U.S., where a strong economy has enabled double-digit annual increases in IT investment. In contrast, IT spending growth forecasts for Europe hover in the 7%- to 8%-per-year range. It is not at all clear that this will be sufficient.

Thus, Europe's hopes for a more prosperous future seem to rest on its ability to successfully get through the bold changes of the next few years. If it can establish a dynamic telecom industry and gain the efficiencies of a single currency, it will have established a much more potent platform for 21st-century competitiveness. Who knows? Just as Japan dominated the 1980s and America the 1990s, perhaps Europe's turn is finally coming around. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is david_moschella@cw.com.*

NEWS

The Back Page

alt.cw

Dispatches & images from the fringes of the electronic frontier

DEEP BLUE HOSTS SUPER BOWL MANIA

The National Football League, NBC Sports and IBM have jointly developed the official Super Bowl XXXII Internet site (*www.superbowl.com*) using IBM's RS/6000 as the host computer. It will feature a live cybercast of the game Jan. 25, football-related comedy bits from Jay Leno and an Internet store for purchasing Super Bowl merchandise online.

Patent watch

Recently issued U.S. patents (number, inventor/assignee, date)

Automated apparatus for handling urine samples for image processing and analysis. (5,699,794, NeoPath, Redmond, Wash., Dec. 23)

Virtual reality system that simulates a traditional pinball machine. The arcade game appears on a computer display or projection, but the user can nudge the machine in an effort to influence the ball's path. Too much nudging produces a "tilt" alarm. (5,700,193, U.S. Philips, New York, Dec. 23)

Printers and copiers usually don't tell you they are running out of paper ahead of time. This sensing device, like a car's fuel gauge, measures the stack of paper and alerts the user when the stack is getting low. (5,700,003, Samsung Electronics, South Korea, Dec. 23)

Source: MicroPatent (*www.micropat.com*)

The butler did it

Download Butler, a shareware utility for collecting and categorizing downloaded Internet files, won the Best Program of the Year honors in the 1997 SharewareJunkies.com awards program. The vendor is Lincoln Beach Software in Ballwin, Mo.

Klever Marketing in Salt Lake City is testing video displays mounted on grocery carts that flash promotional messages when passing certain products. The shopper can press a button to get a "paperless coupon" for the highlighted product at the checkout register. Early testing indicates that consumers who use the system are more likely to pick up the promoted product. The Klever-Karts also provide a store directory, but they aren't clever enough to keep all four wheels going in the same direction.

Inside Lines

PeopleSoft to add outsourcing services

PeopleSoft in Pleasanton, Calif., is getting into the outsourcing game. Company officials today are to expected to announce the formation of a new business unit that will provide transaction processing and hardware outsourcing for clients. PeopleSoft is keeping details of its plan close to the vest, but several months ago it announced that it was forming regional centers for helping smaller companies launch enterprise resource planning systems. The centers were set up to let PeopleSoft and partners load, configure and run software on servers for users off-site. PeopleSoft officials said at the time that those centers would be instrumental in future outsourcing plans for the company. Details are slated to be released this spring.

Collective know-how

Start-up Intraspect Software in Los Altos, Calif., is gearing up for a late January rollout of its Intraspect Knowledge Management software. Companies will be able to use the software to create a "group memory" that can be accessed from Windows clients or Web browsers.

Who needs SET?

San Diego Books' Web site (*www.Sandiego-books.com*) has gotten over consumer squeamishness about putting credit cards online: It ships merchandise to customers and then requests that payment be mailed after delivery. The company claims that its losses are few but acknowledges, "This may not be the way for all businesses to run their railroad."

Putting his money where his mouth is

During the recent debut of his new radio talk show, *The Y2K Advisor*, Tony Keyes offered a $10,000 reward to the first person who could successfully debunk the year 2000 problem. "I want to dispel once and for all the myth that the century date change will be a nonproblem for society," said Keyes, whose program airs twice weekly on WBZS-AM in Washington. "We have wasted far too much time debating whether or not [year 2000] is just market hype," he said.

Bay Networks to ship Layer 3 switch

Bay Networks this week will ship a line of LAN switches with built-in, high-speed routing capabilities. The so-called Layer 3 Accelar switches will let users reduce or eliminate their reliance on expensive stand-alone routers. Bay is offering four-slot, eight-slot and stackable models. Base pricing for the product line starts at $12,000.

Read between the lines

Pity the poor Sybase sales force. Just days after Sybase blamed lower-than-expected fourth-quarter sales on poor execution by its North American sales organization, the database vendor last week held its 1998 sales kick-off meeting in Orlando, Fla. Sybase CEO Mitchell Kertzman said he told the assembled sales types that he "was pissed off because I just think we're better than this." Asked if that meant he read them the riot act, Kertzman demurred and said he was just "trying to express my frustration in a way that would motivate people constructively." Better make those quotas this quarter, folks.

Doing time? Why break rocks while paying your debt to society when all those year 2000 problems are waiting to be fixed? U.K.-based systems vendor ICL is planning to meet with British prison officials to float a proposal for putting prisoners with computer know-how to work on year 2000 fixes. That could lend a whole new meaning to the concept of being shackled to technology. If you have any news tips that are looking to bust out, send them to news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

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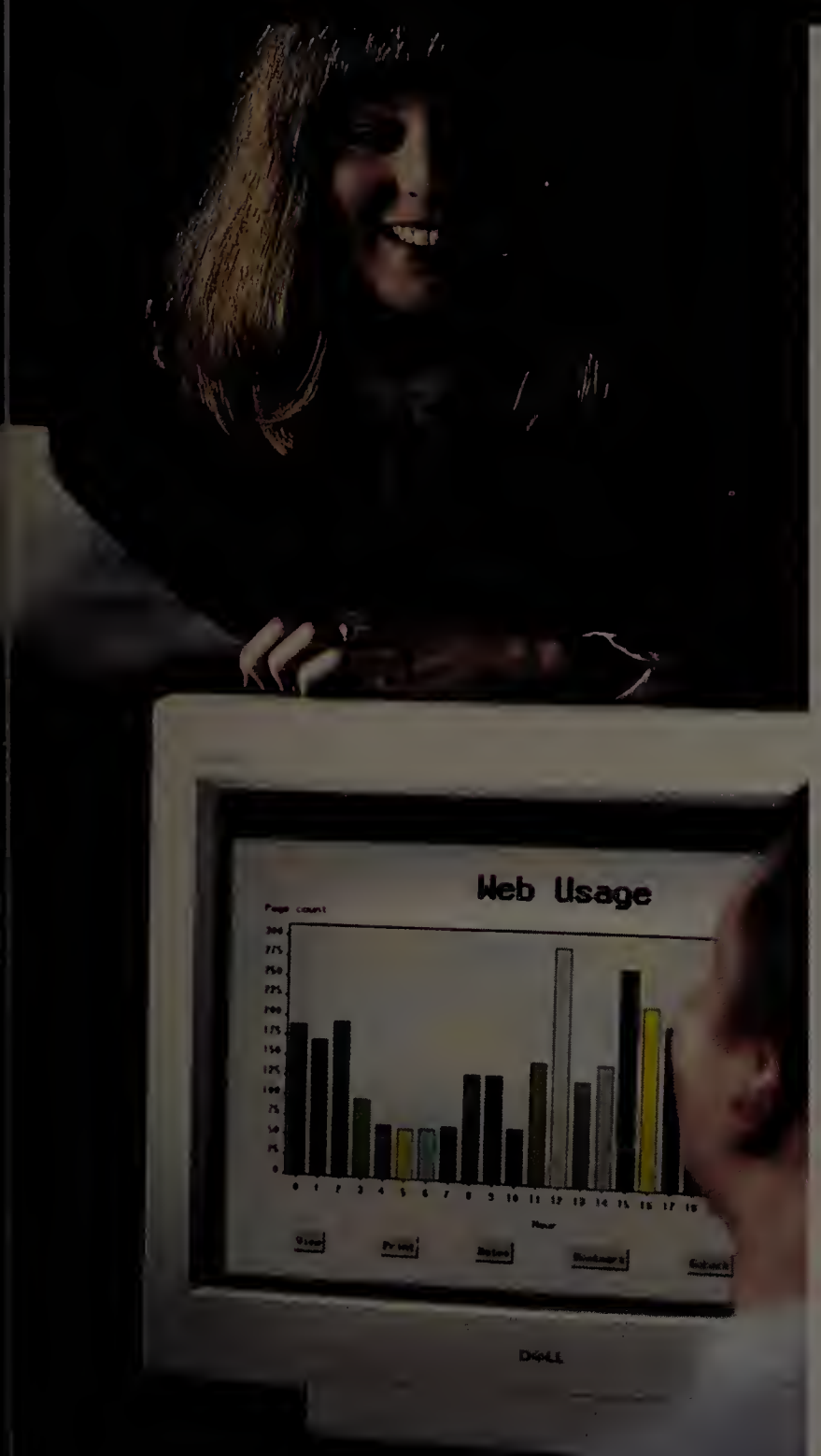

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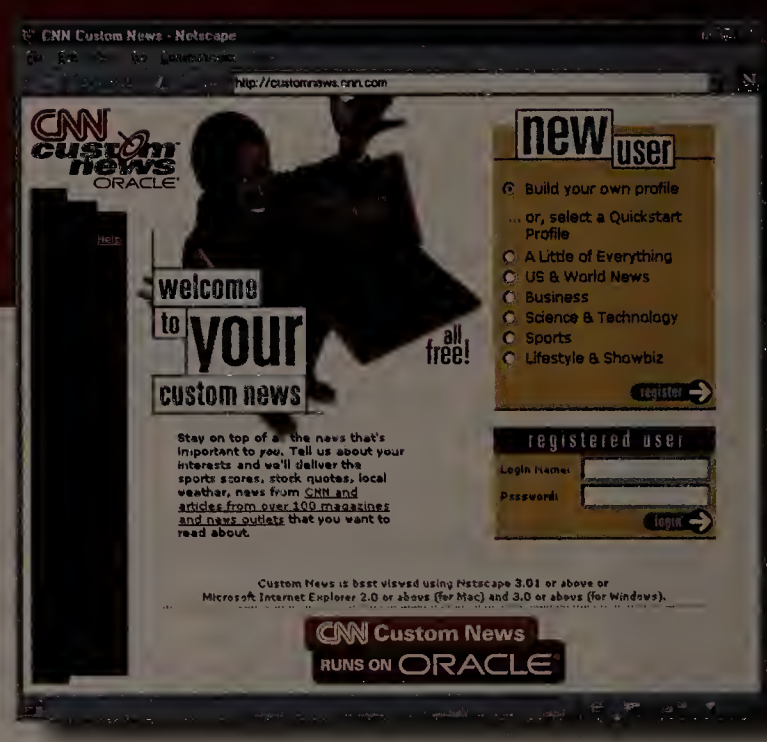

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